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THE UNIVERSITY BULLETINS

FOURTEENTH SERIES: NO. 4—PART 3

UNIVERSITY OF PENNSYLVANIA

SCHOOL OF MEDICINE

(1913-1914)

Announcement for the 149th Annual Session

1914-1915



Founded 1740

PHILADELPHIA
PUBLISHED BY THE UNIVERSITY
BI-MONTHLY
MARCH, 1914

Entered at the Philadelphia, Pa., Post-Office as Second Class Matter

SPECIAL NOTICE.

Copies of the University Catalogue (containing detailed information concerning all the Schools) may be obtained ONLY upon application to the Secretary of the University, Room 114, College Hall.

To any alumnus of the University, the Catalogue will be sent upon application on receipt of name, class and address.

The special announcement of the following divisions of the University will be sent upon application to the appropriate Dean:

THE COLLEGE, including

THE SCHOOL OF ARTS.

THE SUMMER SCHOOL.

THE COLLEGE COURSES FOR TEACHERS.

THE TOWNE SCIENTIFIC SCHOOL.

THE WHARTON SCHOOL.

THE GRADUATE SCHOOL.

THE LAW SCHOOL.

THE SCHOOL OF MEDICINE.

THE SCHOOL OF DENTISTRY.

THE SCHOOL OF VETERINARY MEDICINE.

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THE UNIVERSITY.

General Information.

LOCATION.

The buildings of the University of Pennsylvania are situated in Philadelphia, on property covering an area of over fifty-nine acres. In addition to this land the University has recently acquired from the city an adjoining tract comprising fifty-five acres, more or less. The University may be reached from the various railroad stations as follows: From the West Philadelphia station of the Pennsylvania Railroad, on foot west on Woodland Avenue, a walk of less than ten minutes; from the Philadelphia and Reading Terminal station by the electric subway, west to Thirty-second Street, thence on foot west on Woodland Avenue; or from the Baltimore and Ohio Railroad Station by a walk of one square south to Walnut Street, thence by car over the bridge west to Thirty-fourth Street.

APPLICATIONS FOR CATALOGUES, ETC.

Applications for copies of the annual University Catalogue should be addressed to the Secretary of the University of Pennsylvania, Philadelphia, Pa.

The University also issues pamphlets relating to the College and the several Schools or to individual Departments and often containing information not found in the Catalogue. Inquirers interested in special branches of work only are advised to apply for these pamphlets, not for the Catalogue.

All letters of inquiry regarding the internal regulations and requirements in the College or each separate School of the University should be addressed to the Dean of that section (see *Administrative Officers*, following), and *not* to the Secretary of the University.

ACCOMMODATIONS FOR STUDENTS.

Lodging for students to the number of more than eight hundred is provided in the present dormitory system, which comprises an extended group of contiguous houses fronting upon three open courts. Plans of the dormitories, prices, and other details may be obtained upon application to the Bursar of the University, College Hall.

Board and lodging may be obtained also in the immediate vicinity of the University. Upon application at the offices of the Bursar, College Hall, lists of approved boarding houses may be seen.

HOUSTON HALL.

Houston Hall is the home of the Houston Club, to membership in which any member of the University is eligible. The fee for active membership in the club is \$3.00 per annum.

Its purposes are to provide for the students a place where all may meet socially on common ground, and to furnish every available facility for healthy recreation and amusement in leisure hours. The equipment of the Hall includes a reading-room, with a large number of periodicals and newspapers; smoking-rooms, billiard and pool tables, tables for chess and checkers, a correspondence room, bowling alleys, shuffle boards, a bath-room, including shower and needle baths, and a swimming pool; athletic trophy rooms; a large auditorium with grand organ; rooms for the University papers and other organizations; a dark room for amateur photographers and many other rooms for general purposes.

The Christian Association, which has its headquarters in Houston Hall, is prepared to furnish prospective students, through its Secretary, full information with regard to the various undergraduate social activities, both secular and religious.

A Students' Employment Bureau is affiliated with the Christian Association: address Dana G. How, Director, Houston Hall.

UNIVERSITY OF PENNSYLVANIA.

CHRONOLOGICAL TABLE.

1740—"Charity School" founded.
1749—The "Academy" established, with which the Charity School was combined.
1753—Charter granted by Thomas and Richard Penn, incorporating "The Academy and Charitable School."
1755—"Confirmatory Charter" granted by Thomas and Richard Penn, incorporating "The College, Academy and Charitable School."
1765—School of Medicine founded.

From September, 1777, to June, 1778, owing to the occupation of Philadelphia by British troops, recitations and lectures were suspended.

1779—Withdrawal of the chartered rights and privileges of The College by the State Assembly, and incorporation of the "University of the State of Pennsylvania."
1789—Restoration of its chartered rights and privileges to The College.
1790—Law School founded (re-established in 1850).
1791—Union of the University of the State of Pennsylvania with The College, under the title of the UNIVERSITY OF PENNSYLVANIA.
1874—University Hospital established.
1875—Towne Scientific School founded.
1877—Department of Music established.
1878—School of Dentistry founded.
1881—Wharton School of Finance and Commerce founded.
1882—Graduate School founded.
1884—Veterinary School founded.
1885—Veterinary Hospital established.
1885—Department of Physical Education established.
1889—Department of Archaeology established.
1892—Laboratory of Hygiene established.

- 1892—Wistar Institute of Anatomy and Biology established.
- 1892—Saturday Courses for Teachers established.
- 1896—Houston Club organized.
- 1896—Flower Astronomical Observatory opened.
- 1904—Summer School (College) established.
- 1906—College Courses for Teachers established.
- 1910—Henry Phipps Institute transferred to the University.
- 1912—Division of the College into three departments—The College, the Towne Scientific School and the Wharton School.

ADMINISTRATIVE OFFICERS.

OF THE CORPORATION.

Provost—EDGAR F. SMITH, PH.D., Sc.D., L.H.D., LL.D.

Office in the John Harrison Laboratory of Chemistry, Thirty-fourth and Spruce Streets.

Vice-Provost—JOSIAH H. PENNIMAN, PH.D., LL.D.

Office, 104 College Hall.

Secretary—EDWARD ROBINS, A.M.

Office, 114 College Hall. Office hours, 9.30 A. M. to 4.30 P. M.
Saturdays, 9.30 A. M. to 1 P. M.

Treasurer—WILLIAM H. HUTT, JR.

Office, 400 Chestnut Street.

Recorder—GEORGE E. NITZSCHE, LL.B

Office, Houston Hall.

Bursar—WILLIAM O. MILLER, A.B.

Office, 102 College Hall. Office hours, 9 A. M. to 5 P. M., daily.
The Bursar's office is open from 8.45 A. M. to 5 P. M. Saturdays,
8.45 A. M. to 1 P. M.

OF THE COLLEGE AND PROFESSIONAL FACULTIES.

Dean of the College Faculty—ARTHUR HOBSON QUINN, PH.D.

Office, 103 College Hall, Woodland Avenue. Office hours, 9 A. M. to 12 M., daily.

Dean of the Towne Scientific School Faculty—JOHN FRAZER, A.M., PH.D.

Office, Engineering Building. Office hours, 9 A. M. to 12 M., and 3 P. M. to 4 P. M., daily.

Dean of the Wharton School Faculty—ROSWELL C. McCREA, A.M., PH.D.

Office, Logan Hall, Thirty-sixth Street below Woodland Avenue.
Office hours, 8.30 to 10.30 A. M.

Dean of the Graduate School Faculty—HERMAN V. AMES, A.M., PH.D.
Office, 105 College Hall, Woodland Avenue. Office hours, 9 A. M. to 12 M., daily.

Dean of the Law Faculty—WM. DRAPER LEWIS, LL.B., PH.D.
Office in the Law School Building, Thirty-fourth and Chestnut Streets. Office hours, 11.15 A. M. to 12.15 P. M., daily, except Mondays and Tuesdays, 12.15 to 1 P. M.

Dean of the Medical Faculty—WILLIAM PEPPER, A.B., M.D.
The Dean's Office (in the Medical Laboratories, Hamilton Walk) is open from 9 A. M. to 5 P. M.; Saturdays, 9 A. M. to 1 P. M.

Dean of the Dental Faculty—EDWARD C. KIRK, D.D.S., Sc.D.
Office, Dental Hall, Thirty-fourth and Locust Streets. Office hours, 9 A. M. to 1 P. M., daily.

Dean of the Faculty of Veterinary Medicine—LOUIS A. KLEIN, V.M.D.
Office, Veterinary Building, Thirty-ninth Street and Woodland Avenue. Office open daily from 9 A. M. to 5 P. M., except Saturday; on Saturday, 9 A. M. to 1 P. M.

OF THE DEPARTMENT OF PHYSICAL EDUCATION.

Director—R. TAIT MCKENZIE, A.B., M.D.
Office in the Gymnasium, Thirty-third and Spruce Streets. Office hours, 3 P. M. to 6 P. M., daily, except Saturdays.

Students' Physicians—The Trustees have appointed DRs. G. L. DEWALD, GEORGE WILSON and J. C. BIRDSALL to act as students' physicians, under the guidance of DR. FRED H. KLAER, Physician-in-Chief of the Medical Dispensary of the University Hospital.

Ophthalmologist—WILLIAM C. POSEY, A.B., M.D., 2049 Chestnut Street. Office hours, from 8.30 A. M. to 1 P. M., daily. Telephone connection.

OF OTHER DEPARTMENTS.

Librarian of the University—MORRIS JASTROW, JR., PH.D.
Office in the Library, Thirty-fourth Street below Walnut.

Assistant Librarian—KATHARINE S. LEIPER.

The Library is open daily during term-time, except Sundays and holidays, from 8.30 A.M. to 10 P.M. During the summer vacation, from 9 A.M. to 5 P.M.; during the session of the Summer School, from 8.30 A.M. to 5 P.M.

Librarian of the Biddle Law Library—MRS. MARGARET C. KLINGELSMITH, LL.B.

Office in the Law School Building, Thirty-fourth and Chestnut Streets. Office hours, 10 A.M. to 5 P.M., daily.

Director of the Summer School—J. P. W. CRAWFORD, PH.D.
Office, College Hall.*Superintendent of the University Hospital*—MARION E. SMITH.

The Hospital is on Spruce Street above Thirty-fourth. Communications concerning the Hospital and the admission of patients should be addressed to the Superintendent.

Director of the William Pepper Clinical Laboratory—HERBERT FOX, M.D.

Office in the Laboratory. Office hours, 2 P.M. to 3 P.M., daily. The Laboratory is on Spruce Street below Thirty-sixth, adjoining the Hospital.

Director of the Wistar Institute—MILTON J. GREENMAN, PH.B., M.D., Sc.D.

Office in the Institute, Thirty-sixth Street and Woodland Avenue. Office hours, from 12 M. to 1 P.M., daily, except Saturdays.

Director of the John Harrison Laboratory of Chemistry—EDGAR F. SMITH, PH.D., Sc.D., L.H.D., LL.D.

Office in the Laboratory, Thirty-fourth and Spruce Streets.

Director of the Laboratory of Hygiene—ALEXANDER C. ABBOTT, M.D., DR. P.H., Sc.D.

Office in the Laboratory, Thirty-fourth Street below Walnut.

First Assistant in the Laboratory of Hygiene—DAVID HENDRICKS BERGEY, A.M., M.D.

Office in the Laboratory. Office hours, 9 A.M. to 12 M., and 2 P.M. to 5 P.M., daily.

Director of the Randal Morgan Laboratory of Physics—ARTHUR W. GOODSPED, PH.D.

Office in the Laboratory, Thirty-fourth Street below Walnut.

Director of the Psychological Laboratory and Clinic—LIGHTNER WITMER, PH.D.

Office in the Laboratory, College Hall.

Director of the Light and Heat Station—SAMUEL B. LOCKE.

Engineer of Construction—WILLIAM R. JONES.

Office in the Central Light and Heat Station, Thirty-fourth and Spruce Streets.

Director of the Zoölogical Laboratory—CLARENCE E. McCLUNG, PH.G., A.M., PH.D.

The Laboratory is on Hamilton Walk.

Director of the Robert Hare Chemical Laboratory—JOHN MARSHALL, M.D., NAT. SC.D., LL.D.

Director of the Botanic Garden—JOHN M. MACFARLANE, D.Sc.

The Garden is adjacent to the Botanical Laboratory, on Hamilton Walk, and is open daily from 7 A. M. to sunset. The greenhouses are open from 8 A. M. to 5 P. M.

Director of the Flower Astronomical Observatory—ERIC DOOLITTLE, C.E.

The Observatory is situated at Cedar Lane Station, one mile beyond the Sixty-ninth Street Terminal Station of the Market Street elevated electric road.

Purchasing Agent—BOULTON EARNSHAW.

Office, College Hall. Office hours, 9 A. M. to 4.30 P. M.

HENRY PHIPPS INSTITUTE.

Executive Director—CHARLES J. HATFIELD, M.D.

Director of the Laboratory—PAUL A. LEWIS, M.D.

Director of the Clinical and Sociological Departments—H. R. M. Landis, M.D.

UNIVERSITY MUSEUM.

The Museum contains the archaeological and ethnological collections of the University, and is situated on Spruce Street below Thirty-fourth, opposite Franklin Field. The collections are open to visitors daily from 10 A. M. to 5 P. M.; on Sundays, from 2 P. M. to 6 P. M.

Director, GEORGE B. GORDON, SC.D.

GENERAL SUMMARIES.

OFFICERS OF INSTRUCTION.

The College.....	159
Towne Scientific School.....	165
Wharton School.....	54
Graduate School.....	117
Law School.....	26
School of Medicine.....	171
" " Dentistry.....	62
" " Veterinary Medicine.....	27
Emeritus Professors.....	8
	789
Duplications.....	229
	560
Total.....	

STUDENTS.

The College.....	2,008
Towne Scientific School.....	914
Wharton School.....	1,803
Graduate School.....	470
Law School.....	374
School of Medicine.....	284
" " Dentistry.....	588
" " Veterinary Medicine.....	118
	6,559
Duplications.....	227
	6,332
Total.....	

GEOGRAPHICAL SUMMARY OF STUDENTS.

Alabama.....	21	Austria.....	1	Central America.....	21
Argentina.....	5	Brazil.....	29	China.....	24
Arkansas.....	1	British Guiana.....	1	Colombia.....	10
Armenia.....	1	British West Indies.....	11	Colorado.....	14
Asia Minor.....	1	California.....	26	Connecticut.....	89
Australia.....	16	Canada.....	11	Costa Rica.....	2

Cuba	12	Mexico	10	Rhode Island	11
Delaware	72	Michigan	18	Roumania	4
Dist. of Columbia	43	Minnesota	34	Russia	1
Ecuador	4	Mississippi	3	Scotland	2
Egypt	7	Missouri	15	South Africa	2
England	6	Montana	13	South Carolina	7
Florida	10	Nebraska	11	South Dakota	5
France	10	New Hampshire	9	Spain	3
Georgia	19	New Jersey	539	Sweden	1
Germany	6	New Mexico	1	Switzerland	8
Greece	2	New York	376	Syria	1
Hawaii	1	New Zealand	3	Tennessee	10
Holland	2	North Carolina	39	Texas	13
Idaho	8	North Dakota	2	Turkey in Asia	2
Illinois	25	Ohio	91	Utah	10
India	3	Oklahoma	1	Vermont	10
Indiana	46	Oregon	5	Virginia	31
Iowa	24	Panama	5	Washington	24
Italy	4	Pennsylvania, out-		West Virginia	18
Japan	7	side of Phila	1,908	Wisconsin	29
Kansas	9	Philadelphia	2,450	Wyoming	1
Kentucky	9	Persia	1	Total	6,559
Korea	1	Peru	4	Duplications	227
Louisiana	5	Philippine Islands	3		—
Maine	20	Poland	2	Total	6,332
Maryland	96	Porto Rico	14		—
Massachusetts	73	Portugal	1		—

SCHOOL OF MEDICINE.*

On September 25, 1914, the 149th annual session of the School of Medicine will be opened, to continue until June 16, 1915, when the annual commencement exercises for the term will be held.

This venerable institution, the oldest Medical School in the United States, was founded in 1765 by DR. JOHN MORGAN, who filled in it the first medical professorship created in America. In his opening "Discourse upon the Institution of Medical Schools in America," delivered in the College of Philadelphia, May 30, 1765, DR. MORGAN uttered these prophetic words: "Perhaps this medical institution, the first of its kind in America, though small in its beginning, may receive a constant increase of strength, and annually exert new vigor. It may collect a number of young persons, of more than ordinary abilities, and so improve their knowledge as to spread its reputation to distant parts. By sending these abroad duly qualified, or by exciting an emulation amongst men of parts and literature, it may give birth to other useful institutions of a similar nature, or occasional rise, by its example, to numerous societies of different kinds, calculated to spread the light of knowledge through the whole American continent, wherever inhabited."

Through DR. MORGAN, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the 18th century. To DR. MORGAN was soon joined another pupil of CULLEN, DR. WILLIAM SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, methods of instruction in which were substantially adopted here. In the next year DR. ADAM KUHN was added as Professor of Botany and Materia Medica; and on June 21, 1768, a Commencement was held, at which medical honors were bestowed, the first in point of time in America. In 1769, DR. BENJAMIN RUSH was elected to the Professorship of Chemistry, while DR. THOMAS BOND, one of the trustees of the College of Philadelphia, delivered lectures on Clinical Medicine in the Pennsylvania Hospital.

To the faculty thus composed of MORGAN, SHIPPEN, KUHN and RUSH have succeeded, at various times, professors whose reputations

* The authorities of the school reserve the right to make such modifications in connection with the announcements embodied in this catalogue as may from time to time be required or deemed wise without the formality of further notice.

have been national, as WOODHOUSE, BARTON, WISTAR, CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GEORGE B. WOOD, HODGE, FRANCIS GURNEY SMITH, HENRY H. SMITH, LEIDY, AGNEW, GOODELL, PEPPER, STILLÉ, R. A. F. PENROSE, H. C. WOOD, ASHHURST, NORRIS, TYSON and DUHRING.

The number of graduates in the School of Medicine is 13,820.

PART I.

TEACHING STAFF.

SCHOOL OF MEDICINE.

FACULTY.

EDGAR F. SMITH, Ph.D., Sc.D., L.H.D., LL.D., PROVOST.

JOSIAH H. PENNIMAN, Ph.D., LL.D., VICE-PROVOST.

WILLIAM PEPPER, A.B., M.D., Dean of the School of Medicine.

HORATIO C. WOOD, M.D., LL.D., Emeritus Professor of *Materia Medica*, Pharmacy and General Therapeutics.

JAMES TYSON, M.D., LL.D., Emeritus Professor of Medicine.

JAMES WILLIAM WHITE, M.D., LL.D., JOHN RHEA BARTON Emeritus Professor of Surgery.

PROFESSORS.

EDWARD T. REICHERT, M.D., Sc.D., Professor of Physiology.

BARTON COOKE HIRST, A.B., M.D., Professor of Obstetrics.

GEORGE A. PIERSOL, M.D., Sc.D., Professor of Anatomy.

JOHN MARSHALL, M.D., NAT. Sc.D., LL.D., Professor of Chemistry and Toxicology.

ALEXANDER C. ABBOTT, Dr.P.H., M.D., Sc.D., PEPPER Professor of Hygiene and Bacteriology.

JOHN G. CLARK, M.D., Professor of Gynecology.

GEORGE E. DE SCHWEINITZ, A.M., M.D., LL.D., Professor of Ophthalmology.

CHARLES H. FRAZIER, A.B., M.D., Sc.D., Professor of Clinical Surgery.

CHARLES K. MILLS, M.D., Professor of Neurology.

WILLIAM G. SPILLER, M.D., Professor of Neuropathology.

CHARLES W. BURR, B.S., M.D., Professor of Mental Diseases.

R. TAIT McKENZIE, A.B., M.D., Professor of Physical Education and of Physical Therapy.

RICHARD MILLS PEARCE, M.D., Professor of Research Medicine.

ALONZO ENGELBERT TAYLOR, M.D., BENJAMIN RUSH Professor of Physiological Chemistry.

ALFRED N. RICHARDS, A.M., Ph.D., Professor of Pharmacology.

ALLEN J. SMITH, A.M., M.D., Sc.D., LL.D., Professor of Pathology and of Comparative Pathology; in charge of the courses in Tropical Medicine.

EDWARD MARTIN, A.M., M.D., JOHN RHEA BARTON Professor of Surgery.

GWILYM G. DAVIS, M.D., M.R.C.S. (Eng.), LL.D., Professor of Orthopedic Surgery.

JOHN B. DEAVER, M.D., LL.D., Professor of Practice of Surgery.

ALFRED STENGEL, M.D., Sc.D., Professor of Medicine.

MILTON B. HARTZELL, A.M., M.D., LL.D., Professor of Dermatology.

HENRY K. PANCOAST, M.D., Professor of Roentgenology.

M. HOWARD FUSSELL, M.D., Professor of Applied Therapeutics.

B. ALEXANDER RANDALL, M.A., M.D., PH.D., Professor of Otology.

J. P. CROZER GRIFFITH, PH.D., M.D., Professor of Pediatrics.

THOMAS R. NEILSON, M.D., Professor of Genito-Urinary Diseases.

CHARLES P. GRAYSON, M.D., Professor of Laryngology and Rhinology.

DAVID RIESMAN, M.D., Professor of Clinical Medicine.

JOSEPH SAILER, M.D., Professor of Clinical Medicine.

ON THE GEORGE B. WOOD FOUNDATION.

DANIEL J. McCARTHY, A.B., M.D., Professor of Medical Jurisprudence.

————— Professor of Botany.

ASSOCIATE PROFESSORS.

WILLIAM G. SPILLER, M.D., Associate Professor of Neurology.

JAMES K. YOUNG, M.D., Associate Professor of Orthopedic Surgery.

T. TURNER THOMAS, M.D., Associate Professor of Applied Anatomy and Associate in Surgery.

ADJUNCT PROFESSORS.

RICHARD H. HARTE, M.D., Adjunct Professor of Surgery.

JAMES P. HUTCHINSON, M.D., Adjunct Professor of Surgery.

ASSISTANT PROFESSORS.

ALFRED C. WOOD, M.D., Assistant Professor of Surgery.
RICHARD C. NORRIS, A.M., M.D., Assistant Professor of Obstetrics.
DAVID H. BERGEY, A.M., M.D., Assistant Professor of Bacteriology.
WILLIAM PEPPER, A.B., M.D., Assistant Professor of Clinical Pathology and Dean of the Faculty.
J. EDWIN SWEET, A.M., M.D., Assistant Professor of Surgical Research.
PAUL A. LEWIS, M.D., Assistant Professor of Pathology.
GEORGE W. NORRIS, A.B., M.D., Assistant Professor of Medicine.
EDWARD LODHOLZ, M.D., Assistant Professor of Physiology.
GEORGE FETTEROLF, M.D., Assistant Professor of Anatomy.
WILLIAM H. F. ADDISON, A.B., M.B., Assistant Professor of Histology and Embryology.
LEON A. RYAN, PH.B., PH.D., Assistant Professor of Chemistry and Toxicology.
H. R. M. LANDIS, M.D., Assistant Professor of Medicine.

DAMASO RIVAS, M.S., M.D., PH.D., Assistant Director of Laboratory of Comparative Pathology and Tropical Medicine.

ASSOCIATES.

THOMPSON S. WESTCOTT, A.B., M.D., Associate in Pediatrics.
HERMAN B. ALLYN, A.B., M.D., Associate in Medicine.
NATHANIEL GILDERSLEEVE, M.D., Associate in Bacteriology.
JOHN H. GIRVIN, M.D., Associate in Obstetrics.
WILLIAM R. NICHOLSON, PH.B., M.D., Associate in Obstetrics.
JAMES W. McCONNELL, M.D., Associate in Neurology.
BROOKE M. ANSPACH, M.D., Associate in Gynecology.
JOHN B. CARNETT, M.D., Associate in Surgery.
GEORGE P. MÜLLER, M.D., Associate in Surgery.
JOHN H. JOPSON, M.D., Associate in Surgery.
JOHN C. HIRST, M.D., Associate in Obstetrics
MAURICE OSTHEIMER, A.B., M.D., Associate in Pediatrics.
ALFRED R. ALLEN, M.D., Associate in Neurology and Neuropathology.
J. HAROLD AUSTIN, B.S., M.D., Associate in Medicine and in Research Medicine.
A. P. FRANCINE, A.M., M.D., Associate in Medicine.

S. D. LUDLUM, B.S., M.D., Associate in Neurology and Neuro-pathology.
E. H. GOODMAN, M.D., Associate in Medicine.
G. M. PIERSOL, B.S., M.D., Associate in Medicine.
O. H. PERRY PEPPER, M.D., Associate in Medicine and in Research Medicine.
FRED H. KLAER, A.B., M.D., Associate in Medicine.

LECTURERS.

ARTHUR A. STEVENS, A.M., M.D., Lecturer on Medicine.
B. FRANKLIN STAHL, PH.G., B.S., M.D., Lecturer on Dietetics of the Sick and Associate in Medicine.
JOHN T. CARPENTER, M.D., Lecturer on Ophthalmology.
FRANCIS R. PACKARD, M.D., Lecturer on the History of Medicine.

INSTRUCTORS.

CHARLES C. NORRIS, M.D., Instructor in Gynecology and Assistant in Gynecological Pathology.
EDWARD A. SHUMWAY, B.S., M.D., Instructor in Ophthalmology.
E. HOLLINGSWORTH SITER, M.D., Instructor in Genito-Urinary Diseases.
WALTER S. CORNELL, B.S., M.D., Instructor in Osteology.
THOMAS B. HOLLOWAY, M.S., M.D., Instructor in Ophthalmology.
H. MAXWELL LANGDON, M.D., Instructor in Ophthalmology.
J. CLAXTON GITTINGS, M.D., Instructor in Pediatrics.
WALTER G. ELMER, B.S., M.D., Instructor in Orthopedic Surgery.
HOWARD C. CARPENTER, M.D., Instructor in Pediatrics.
CLIFFORD B. FARR, M.A., M.D., Instructor in Medicine.
JOHN SPEESE, M.D., Instructor in Surgery, and in Surgical Pathology.
CHARLES A. FIFE, A.B., M.D., Instructor in Pediatrics.
THOMAS A. COPE, M.D., Instructor in Medicine.
WILLIAM B. SMALL, A.M., M.D., Instructor in Gynecology.
B. A. THOMAS, A.M., M.D., Instructor in Surgery.
FLOYD E. KEENE, M.D., Instructor in Gynecology.
RALPH BUTLER, M.D., Instructor in Otology and Assistant in Otological Pathology.
CARL WILLIAMS, B.S., M.D., Instructor in Ophthalmology.
WALTER S. HARGETT, A.B., M.D., Instructor in Laryngology.

ROBERT G. TORREY, M.D., Instructor in Medicine.

FRANK C. KNOWLES, M.D., Instructor in Dermatology and Assistant in Dermatological Pathology.

WILSON G. WOOD, B.S., M.D., Instructor in Pharmacology.

FRANK A. CRAIG, M.D., Instructor in Medicine.

JOHN M. CRUICE, A.B., M.D., Instructor in Medicine.

C. M. MONTGOMERY, A.B., M.D., Instructor in Medicine.

GEORGE G. ROSS, M.D., Instructor in Surgery.

ALBERT D. WHITING, M.D., Instructor in Surgery.

DAMON B. PFEIFFER, M.D., Instructor in Surgery.

A. I. RINGER, M.D., Instructor in Physiological Chemistry.

O. H. PLANT, M.D., Instructor in Pharmacology.

A. P. C. ASHHURST, A.B., M.D., Instructor in Surgery.

R. A. KEILTY, M.D., Instructor in Pathological Histology.

J. A. KOLMER, M.D., Instructor in Experimental Pathology.

WILLIAM JACKSON MERRILL, A.B., M.D., Instructor in Orthopedic Surgery.

FRANK D. DICKSON, M.D., Instructor in Orthopedic Surgery.

SAMUEL LEOPOLD, M.D., Instructor in Neurology and Neuropathology.

N. S. YAWGER, M.D., Instructor in Neurology.

WILLIAMS B. CADWALADER, M.D., Instructor in Neurology and Neuropathology.

GEORGE H. CHAMBERS, M.D., Instructor in Histology.

J. REX HOBENSACK, M.D., Instructor in Anatomy.

HOWARD A. SUTTON, M.D., Instructor in Osteology.

WILLIAM E. QUICKSALL, M.D., Instructor in Anatomy.

PENN-GASKELL SKILLERN, M.D., Instructor in Anatomy.

NATHANIEL GINSBURG, M.D., Instructor in Anatomy.

EDWIN C. TOWN, M.D., Instructor in Normal Histology.

FRED D. WEIDMAN, M.D., Instructor in Gross Morbid Anatomy.

H. B. LEWIS, A.B., PH.D., Instructor in Physiological Chemistry.

J. H. MUSSER, M.D., Instructor in Medicine.

WARD BRINTON, M.D., Instructor in Medicine.

NORMAN B. GWYN, M.D., Instructor in Medicine.

ASSISTANT INSTRUCTORS.

JOHN W. BUSCH, M.D., Assistant Instructor in Surgery.

ALEXANDER A. UHLE, A.B., M.D., Assistant Instructor in Genito-Urinary Diseases.

J. H. ALLEN, A.B., M.D., Assistant Instructor in Obstetrics.

L. F. LUBURG, M.D., Assistant Instructor in Obstetrics.

ELDRIDGE L. ELIASON, A.B., M.D., Assistant Instructor in Surgery.

CHARLES F. MITCHELL, M.D., Assistant Instructor in Surgery.

BENJAMIN D. PARISH, B.S., M.D., Assistant Instructor in Otology.

THOMAS C. KELLY, A.M., M.D., Assistant Instructor in Medicine.

GEORGE M. LAWS, B.S., M.D., Assistant Instructor in Surgery.

D. N. HUSIK, M.D., Assistant Instructor in Laryngology.

KARL SCHÄFFLE, M.D., Assistant Instructor in Surgery and in Surgical Pathology.

W. H. MACKINNEY, M.D., Assistant Instructor in Genito-Urinary Diseases.

JOHN L. LAIRD, B.S., M.D., Assistant Instructor in Genito-Urinary Diseases.

J. A. BABBITT, A.M., M.D., Assistant Instructor in Otology.

A. H. HOPKINS, B.S., M.D., Assistant Instructor in Medicine.

E. P. BARNARD, M.D., Assistant Instructor in Obstetrics.

N. L. KNIPE, Ph.B., M.D., Assistant Instructor in Obstetrics.

*A. A. HOWELL, A.B., M.D., Assistant Instructor in Medicine.

E. B. KRUMBHAAR, A.B., M.D., Assistant Instructor in Medicine

HOWARD L. MARSH, B.S., M.S., Assistant Instructor in Chemistry.

DE FOREST P. WILLARD, M.D., Assistant Instructor in Orthopedic Surgery and Surgery.

ROBERT N. IVY, D.D.S., M.D., Assistant Instructor in Surgery.

HENRY WINSOR, M.D., Assistant Instructor in Surgery.

ISAAC H. JONES, M.D., Assistant Instructor in Otology.

LEWIS FISHER, M.D., Assistant Instructor in Otology.

E. C. BENDER, M.D., Assistant Instructor in Laryngology.

THOMAS A. O'HARA, M.D., Assistant Instructor in Orthopedic Surgery.

J. LEON HERMAN, M.D., Assistant Instructor in Genito-Urinary Diseases.

WILLIAM F. GUILFOYLE, M.D., Assistant Instructor in Surgery.

ALEXANDER RANDALL, M.D., Assistant Instructor in Surgery.

GEORGE W. OUTERBRIDGE, M.D., Assistant Instructor in Surgery and in Surgical Pathology.

ARTHUR H. GERHARD, M.D., Assistant Instructor in Medicine.

C. D. DANIELS, M.D., Assistant Instructor in Obstetrics.

* Leave of absence for one year.

L. H. LANDON, M.D., Assistant Instructor in Surgery.
PENN-GASKELL SKILLERN, M.D., Assistant Instructor in Surgery.
FREDERICK C. NARR, M.D., Assistant Instructor in Pathology.
T. GRIER MILLER, M.D., Assistant Instructor in Medicine.
HERMAN EMIL ALBRECHT, M.D., Assistant Instructor in Surgery.
SERGEANT P. MARTIN, M.D., Assistant Instructor in Surgery.
H. B. WILMER, M.D., Assistant Instructor in Medicine.
GEORGE WILSON, M.D., Assistant Instructor in Medicine.
J. C. BIRDSALL, M.D., Assistant Instructor in Surgery.

PROSECTORIS.

R. S. REEVES, M.D., Prosector to the Chair of Anatomy.
HENRY WINSOR, M.D., Prosector to the Associate Professor of Applied Anatomy

ASSISTANTS.

REUBEN A. BOGIA, M.D., Assistant in Physiology.
J. GARRETT HICKEY, D.D.S., M.D., Assistant in Physiology.
HARRY A. SCHATZ, A.B., M.D., Second Assistant in Bacteriology.
SYLVESTER J. DEEHAN, M.D., Third Assistant in Bacteriology.
FREDERICK O. WAAGE, A.B., M.D., Assistant in Physiology.
JAMES GARRETT McCOLLIN, P.D., M.D., Assistant in Physiology.
S. BYRON GOLDSMITH, B.S., M.D., Assistant in Anatomy.
G. J. SAXON, M.D., Assistant in Ophthalmological Pathology.

ELIZABETH BARLETT, *Secretary.*

PART II.

ADMISSION REQUIREMENTS.

ADMISSION REQUIREMENTS.

The requirements for admission to the School of Medicine consist of two parts.

FIRST: The usual college entrance requirements of $14\frac{1}{2}$ units, as explained in detail below.

A Carnegie unit represents a year's work in any subject in a secondary school constituting approximately one-half of a full year's work. This is on the assumption that the length of the school year is from 36 to 40 weeks, that a period is from 40 to 60 minutes in length, and that the study is pursued for not less than 4 periods a week. The total length of time for accomplishing a Carnegie unit cannot be less than 120 sixty-minute hours, or their equivalent.

SECOND: Two years of college work or its equivalent in case of students presenting credentials from a foreign country aggregating not less than 30 units including courses in Physics, Chemistry, and General Biology or Zoölogy, with appropriate laboratory work. (See detailed explanation below.)

A unit of college work is the equivalent of 1 hour of lecture or recitation each week for the full academic year, or of 2 hours of laboratory work each week for the same period.

ADMISSION BY CERTIFICATE: Certificates from recognized colleges, covering these requirements will be accepted in lieu of examinations. All the certificates should be transmitted to the Dean of the Medical Faculty as early as possible in June for decision in early summer. Should this, for good reason, be impossible, then not later than September 1st. These credentials are examined by an Admission Committee composed of members of the Faculty of the College of this University. Candidates should appreciate the importance of sending in their certificates at as early a date as possible, because until these have been acted upon and the decision announced, they will not know in what subjects they will be required to take examinations. Certificates must be accompanied by official statements of the exact amount of Physics, Chemistry, and Zoölogy or General Biology studied, and the laboratory note books of the candidate in these subjects.

(Blanks for these purposes may be obtained upon application to the Dean.)

ADMISSION BY EXAMINATION: Candidates who are unable to meet these requirements by certificate, may apply for examinations in the subjects in which they are deficient. Applications for such examinations should be made to the chairman of the Committee on Advanced Stand-

ing, The College, University of Pennsylvania, not later than September 1.

Full credit for the required amount of Physics, Chemistry, and Zoölogy or General Biology cannot be obtained by examination alone, as a satisfactory amount of laboratory work in these sciences must have been completed at college, and the laboratory note books of the candidate in these subjects must have been presented to the Dean of the School of Medicine.

FIRST PART. COLLEGE ENTRANCE REQUIREMENTS.

A. Each candidate must offer the following:	Units.
English A—Grammar and Composition.....	1½ 1½
" B—General and Specific Reading (A and B).....	1½ 1½
(The English A and B of the C. E. E. B. will be accepted as meeting the requirements in English.)	
History.....	1 1
(Any Histories amounting to 1 unit, chosen from the list below.)	
Mathematics A1—Algebra, to Quadratics.....	1 1
" A2—Algebra, Quadratics and beyond.....	½ ½
" C —Plane Geometry.....	1 1
Two Foreign Languages.....	4 6
(Not less than 2 units in any one language and if Latin is presented 4 units of work in it must be presented.)	
(Greek, Latin, German, French, Spanish or Italian may be offered. One of the Foreign Languages must be either French or German.)	
Total.....	10½ 12½

B. In addition to the particular subjects above, each candidate must offer from the following subjects offered by standard High Schools..... 4 2

(English, Greek, Latin, German, French, Spanish, Italian, Mathematics, History, Civil Government, Economics, Physics, Chemistry, Botany, Zoölogy, Biology, Physiology, Physical Geography, or Physiography, Astronomy or Geology.)

Total..... 14½ 14½

For full details concerning the entrance requirements to the College of the University of Pennsylvania consult the separate announcement of the College.

SECOND PART. COLLEGE WORK.

A. The following subjects must be offered and they must include laboratory work. The candidate's laboratory note books must be presented, certified by the teacher in the usual way.

	Units.
Chemistry—including both General Chemistry and Qualitative Analysis.....	6
Physics.....	4
Zoölogy or General Biology.....	3

Candidates contemplating subsequently applying for a license to practice Medicine in the State of Pennsylvania should present four units in Zoölogy or General Biology as the Bureau of Medical Education and Licensure of the State of Pennsylvania will hereafter probably demand four units in these subjects. The Medical School of the University of Pennsylvania will admit, as above stated, candidates presenting but three units in Zoölogy or General Biology for the session 1914-15. For the session 1915-16 the Medical School of the University of Pennsylvania will probably require four units in these subjects of all applicants.

(For full description of these three science requirements see below.)

B. At least 17 units, made up of subjects which are open to Freshmen and Sophomores in colleges or universities of recognized standing.

For description of appropriate branches representing this portion of the candidate's preparation, reference may be made to the College Announcement of the Annual Catalogue of the University.

The various studies are not here detailed; since considerable latitude of election exists in many colleges and more or less variation in prescribed courses also occurs in different college curricula. Such differences occasioned by election or by regular requirements of institutions will be adjudged by comparison with the work of the Freshman and Sophomore classes of the College of the University of Pennsylvania.

STATE PRELIMINARY REQUIREMENTS.

The Pennsylvania Bureau of Professional Education, a division of the State Department of Public Instruction, requires, according to law for admission to a medical college, a standard four-year high-school course, or the equivalent thereof. The Pennsylvania Bureau of Medical Education and Licensure requires in addition not less than one year of college credits in Chemistry, Biology, Physics and a modern language other than the English language, or the equivalent thereof, to be determined by the Bureau of Professional Education.

In each case in which the credentials meet the State requirements, the applicant, by paying the State fee of one dollar, may secure, through an Examiner, a State Preliminary Certificate (John Loman, Examiner, Perry Building, 16th and Chestnut Streets, Philadelphia, Pa.). *These State Preliminary Certificates meet only in part the requirements for admission to the Medical School of The University of Pennsylvania and will not, unless accompanied by additional credentials, be accepted by The University of Pennsylvania.* State Preliminary Certificates are required of those graduates in Medicine who present themselves for examination by the State Board.

COMPOSITE YEAR IN MEDICINE.

A student in the course in Arts and Science may, in his Senior year, register also as a regular student in the First-year Class in the School of Medicine. Students wishing to avail themselves of this privilege are required to do only fifty-five (55) units of purely college work [including three (3) units in Physical Education], the other nine (9) units required for graduation being credited to them from the studies of the First-year Class in Medicine, including one (1) unit in Physical Education. The Bachelor's Degree is awarded by the College at the satisfactory completion of the fourth year.

The fifty-five (55) units taken in the College by such students must include the required and group work in the course in Arts and Science, except that only three (3) units in Physical Education are required in the College. Such students must also take the work in the sciences required for admission to the School of Medicine. These requirements are: In Chemistry, courses 1 and 3, or their equivalents; in Physics, courses 1 and 2, or their equivalents; in Biology or Zoölogy, three (3) units.* Credits in General Zoölogy presented by candidates must be equivalent to course 1 of the Department of Zoölogy; credits in General Biology must be equivalent to half of course 1 of the Department of Zoölogy and half of course 1 of the Department of Botany of this University. The valuation of credits in Zoölogy or in Biology will be determined by the Departments of Zoölogy and Botany.

TWO-YEAR COURSE PREPARATORY TO MEDICINE.

Students who wish to spend but two years in the College, preparatory to the School of Medicine, should register in Arts and Science,

* See note about the number of these units for candidates intending to practice in the State of Pennsylvania on page 28.

and should be careful to present as one of the two languages required for admission either French or German. They should inform the Dean of the College that it is their intention to enter the Medical School, when they will be referred to an appropriate adviser. For full details see the Announcement of the College.

In addition, certain colleges and universities allow their students at the completion of their Junior year to matriculate in the Medical School of the University of Pennsylvania, and grant them their degree in Arts or Science at the end of their first year in Medicine.

REPRESENTING SPECIAL SCIENTIFIC REQUIREMENTS FOR MEDICAL STUDIES.

Laboratory note-books, properly certified, must be submitted with diploma or certificate.

CHEMISTRY.

Credits for six units in General and Analytical Chemistry are prerequisites to the School of Medicine. These requirements are in general covered by the regular courses in chemistry in colleges recognized by this University. They are covered by courses 1 and 3 of the Department of Chemistry of this University. Credits in chemistry (whether by diploma, certificate or on examination) presented by candidates must be equivalent to said courses 1 and 3 of the Department of Chemistry of this University. Although Organic Chemistry is not required, it is strongly urged that the candidate for admission have done work in this branch of chemistry.

PHYSICS.

Credits for four units of collegiate Physics are prerequisite for admission to the School of Medicine. These requirements are in general covered by the regular lecture and laboratory courses in Physics in colleges recognized by this University. Courses 1 and 2 of the Department of Physics of this University fulfill the requirements. Plane Trigonometry (Mathematics 2) is a prerequisite.

Physics 1 is an elementary College Course in General Physics, consisting of one lecture hour and two hours recitation per week for one year, and counts two units of collegiate work.

Physics 2 is a laboratory course, consisting of one lecture and two hours laboratory work per week for one year. Each student performs about twenty-five experiments chosen from the entire field of elementary Physics. This course also counts two units.

Any similar courses offered by recognized colleges, and equivalent in both amount and grade of work, will be accepted as fulfilling the requirements for admission to the School of Medicine.

GENERAL BIOLOGY OR GENERAL ZOOLOGY.

Credits for three units of collegiate Biology or Zoölogy are prerequisite for admission to the School of Medicine. Credits in these subjects must be equivalent to Course 1 of the Department of Zoölogy or to half of Course 1 of the Department of Zoölogy together with half of Course 1 of the Department of Botany of this University. Botany alone does not meet the requirements.

ADMISSION TO ADVANCED STANDING.

Candidates for admission to advanced standing must come from approved medical schools having equal entrance requirements to those of the Medical School of the University of Pennsylvania. These requirements in brief are two years in regular course for a degree in a college of arts and science, recognized by this University, with insistence that this include, as of college grade, at least one year of work, laboratory exercises, in Physics, Biology or Zoölogy and Chemistry (including Qualitative Analysis), together with two languages other than English (one necessarily French or German) at least to the extent of college admission.

All schools approved by this University are included in the classified list of Medical Colleges, prepared by the Council on Medical Education of the American Medical Association, under the rating Class A and A plus.

Every candidate must present evidence that he has satisfactorily completed the work required in the sessions spent in the medical school from which he comes, and must present also a letter of honorable dismissal from such school. Every candidate in addition must undergo examination in the subjects italicized below.

Candidates who have attended one course in an approved regular medical school are admitted to the SECOND-YEAR Class upon passing a satisfactory examination in *Physiological Chemistry*, *Anatomy* and in *Bacteriology*.

Candidates who have attended two courses in an approved regular medical school are admitted to the THIRD-YEAR Class upon passing a satisfactory examination in *Physiological Chemistry*, *Toxicology*, *Pathology*, *Physical Diagnosis*, *Bacteriology*, the entire subjects of *Anatomy* and *Physiology*, *Applied Anatomy* and *Pharmacology*.

Candidates who have attended three courses in an approved regular medical school are admitted to the FOURTH-YEAR Class upon passing a satisfactory examination in *Physiological Chemistry, Pharmacology, Bacteriology, Physical Diagnosis, Anatomy, Physiology, Applied Anatomy, Pathology, Therapeutics, Medicine, Surgery, Obstetrics, Ophthalmology, and Toxicology*.

Graduates of approved regular medical schools are admitted to the FOURTH-YEAR Class with the understanding that they pass examinations in *Obstetrics, Therapeutics, Pathology and Gross Pathology*, either at the beginning or at the end of the fourth year, in addition to the regular examinations of that year.

Examinations for admission to advanced standing for the session 1914-15 may be taken in the Medical Laboratories, beginning Monday, June 1, 1914, at 9 A. M., or Monday, September 21, 1914, at 2 P. M. All examinations must be passed before the beginning of the regular session, September 25, 1914, at 8 P. M.*

* Students from other colleges who have not had practical work in the subjects here taught in laboratory courses equivalent to that done in this institution will be required to make up such deficiency by taking special courses in such branches.

PART III.

METHODS AND SUBJECTS OF INSTRUCTION.

UNDERGRADUATE.

UNDERGRADUATE INSTRUCTION.

The course of instruction extends over a period of four years, with one session in each year, beginning on the last Friday of September and ending on the third Wednesday in June.

The course may be said to be divided into two periods of two years each: the first period devoted to the fundamental medical sciences, Physiological Chemistry, Toxicology, Anatomy, Physiology, Bacteriology, Pharmacology and Pathology, including also Physical Education; the second period to the clinical subjects, Medicine, Surgery, Obstetrics and the specialties.

FIRST PERIOD.

The subjects of the first two years have been arranged according to a modification of the concentration system. By this system the student is enabled to concentrate his energy upon one or two subjects, and must master these before he is allowed to continue the course. Thus the first year is devoted chiefly to anatomy, including embryology, normal histology and osteology, and to physiological chemistry, and bacteriology.

The subjects of the second year follow in logical sequence those of the year preceding. The time of the second year is thus given over largely to physiology, pathology, pharmacology and applied anatomy. In addition to these the work of the second year includes courses in physical diagnosis, toxicology and bandaging.

Instruction upon the subjects of the first two years is almost entirely practical, so that the greater part of the student's time is spent in the laboratories. In the Laboratories of Anatomy, in those of Pathology, Physiology and Pharmacology, which were opened in June, 1904, and in the bacteriological section of the Laboratory of Hygiene, the students are afforded unsurpassed facilities for practical work in these fundamental subjects.

SECOND PERIOD.

With the beginning of the third year the student enters upon the second period, which covers the third and fourth years, and is devoted almost exclusively to instruction in the so-called clinical subjects—Medicine, Surgery, Obstetrics and the specialties. There is no sharp dividing line between the work of the third and fourth years, so that the courses in the clinical subjects may be said to cover a period of two years.

From a glance at the tabular representation of the hours of instruction for the third and fourth years (later pages), it will be seen that arrangements have been made to keep the student fully occupied throughout each day. No especial opportunities are offered him to engage in special lines of work before he graduates. In point of fact, any desire to specialize before graduation is rather discouraged. It has always been the object and aim of this institution to prepare its students for the practice of general medicine, not to graduate them as "specialists." *Its policy has been to offer the student a well-graded, well-proportioned and comprehensive course*, so that upon his graduation he stands prepared to *practice* medicine. Should he decide to take up a specialty or to engage in teaching or investigation after graduation, he will be the better prepared by his broad education, and still better prepared if he has had several years of clinical experience.

The methods of instruction are varied, but mostly practical. The latter include ward visits, ward classes, clinical conferences and practical observation in the wards and out-patient department of the University Hospital. Systematic lectures, general clinics and recitations have been found indispensable, but play a less conspicuous part in the course.

The facilities for instruction are abundant. It is possible to offer to each student opportunities to come into personal contact under proper supervision with a large and varied series of cases. The University Hospital, with its capacity of 400 beds, is operated exclusively for the benefit of the School of Medicine. Adjoining the University campus is the Philadelphia General Hospital, with a capacity of 1600 beds, where the wards are open to both teachers and students throughout the year; this not including the adjoining Philadelphia Insane Hospital, with over 2000 beds, also available for teaching purposes. Material advantage is had, too, by the students of the Fourth-year Class in attendance in sections upon the work of the Phipps Institute for the Study, Prevention and Cure of Tuberculosis, recently acquired by the University through the generosity of Mr. Henry Phipps.

In addition, extramural teaching is conducted in the Children's, the German and Pennsylvania Hospitals by members of the teaching staff. A voluntary course upon the contagious diseases, conducted at the Municipal Hospital, is offered to the members of the Graduating Class.

ANATOMY.

GEORGE A. PIERSOL, M.D.	<i>Professor of Anatomy.</i>
T. TURNER THOMAS, M.D.	<i>Associate Professor of Applied Anatomy.</i>
GEORGE FETTEROLF, M.D.	<i>Assistant Professor of Anatomy.</i>
WILLIAM H. F. ADDISON, M.B.	<i>Assistant Professor of Histology and Embryology.</i>
WALTER S. CORNELL, M.D.	<i>Instructor in Osteology.</i>
J. REX HOBENSACK, M.D.	
WM. E. QUICKSALL, M.D.	
PENN-GASKELL SKILLERN, M.D.	
NATHANIEL GINSBURG, M.D.	
GEORGE H. CHAMBERS, M.D.	
EDWIN C. TOWN, M.D.	
HOWARD A. SUTTON, M.D.	<i>Instructor in Osteology.</i>
RUFUS S. REEVES, M.D.	<i>Prosector to Professor of Anatomy</i>
HENRY WINSOR, M.D.	<i>Prosector to Associate Professor of Applied Anatomy.</i>
S. BYRON GOLDSMITH, M.D.	
J. LEON HERMAN, M.D.	
ERWIN F. FABER.	<i>Instructor in Drawing.</i>

Of the following courses in Anatomy, I to IX, inclusive, are required of candidates for the degree of Doctor of Medicine. All are completed during the first year, except Courses III and IX, which are completed during the second year. Courses X to XIV are not required, but may be taken by students who have had satisfactory preparatory training.

I. SYSTEMATIC ANATOMY OF THE ORGANS. *Professor Piersol.*—October to January inclusive; three hours weekly.

II. ANATOMY OF THE CENTRAL NERVOUS SYSTEM AND ORGANS OF SPECIAL SENSE. *Professor Piersol.*—February to May inclusive; three hours weekly.

III. COURSE IN APPLIED ANATOMY. *Associate Professor Thomas.*—February to May inclusive; three hours weekly.

IV. LABORATORY COURSE IN GENERAL HISTOLOGY. *Dr. Addison and assistants.*—October to December inclusive; each section two mornings weekly.

V. LABORATORY COURSE IN THE HISTOLOGY OF ORGANS. *Dr. Addison and assistants.*—January to March inclusive; each section two mornings weekly.

VI. LABORATORY COURSE IN EMBRYOLOGY. *Dr. Addison and assistants.*—April to May inclusive; each section two mornings weekly.

VII. OSTEOLOGY. *Dr. Cornell.*—October to January inclusive; one hour weekly.

VIII. LABORATORY COURSE IN OSTEOLOGY. *Drs. Cornell and Sutton.*—October to November inclusive; each section ten hours for seven weeks.

IX. PRACTICAL STUDY OF THE BODY BY DISSECTION. *Dr. Fetterolf and assistants.*—October to May inclusive; each section two hours daily for periods of seven weeks.

X. SPECIAL COURSE ON ANATOMY OF SENSE ORGANS. *Professor Piersol.*—February 1 to May 15; Wednesday mornings.

XI. SPECIAL COURSE IN ANATOMY OF FRACTURES AND LUXATIONS.

XII. ADVANCED LABORATORY COURSE IN VERTEBRATE EMBRYOLOGY. *Professor Piersol and Dr. Addison.*—October 15 to May 1; mornings.

XIII. LABORATORY COURSE IN MICROSCOPICAL TECHNIQUE. *Professor Piersol and Dr. Addison.*—April 1 to May 15; three mornings weekly.

XIV. ADVANCED WORK AND ORIGINAL INVESTIGATION. *Professor Piersol.*—October to May.

Courses I and II, three lectures a week throughout the session, present the principles, as well as details, of human anatomy, including structure and development. Especial pains are taken to impress the broader morphological significance of the details of human anatomy. These courses are exceptionally well illustrated by means of charts, lantern, models, museum preparations and fresh dissections, the unusual resources of the Wistar Institute of Anatomy and Biology being additionally available, not only for class instruction, but also for individual study.

Courses IV and V occupy two mornings each week, until April 1, during which time the student is required to mount, study and draw preparations of all of the important tissues and organs of the human body, as well as to learn the methods employed in their preparation.

Course VI is devoted to the mounting and study of series of chick and mammalian embryos. The laboratory is equipped with excellent microscopes of recent model, and supplied with the most approved apparatus for histological and embryological work.

Course VIII, in the osteological laboratory, is conducted for a period of forty-two days, two hours daily. The exercises include the detailed study of the skeleton, each student being provided with bones which he is required to draw, noting the important features and principal mus-

cular attachments. The joints are also studied on finished dissections. Bones are lent to students upon conditions similar to those governing the issue of books from a library.

Course IX forms a most important part of the first and second year work, every student being required to carefully dissect and pass practical examination upon the cadaver. The class works at least two hours daily under the close supervision of the Instructor in Anatomy and his assistants. Excellent and abundant dissecting material is assured by the improved methods of preservation and the facilities for cold storage. Opportunity for additional work is afforded to students who desire to devote more time to practical anatomy.

Course III is a continuation of the study of anatomy, but from the standpoint of its application, and not as an abstract science. The course embraces surface anatomy, the outlines of the organs, the position of the joints, significance of bony points, muscular swells, the position and means of recognizing the various nerves and arteries; the influence of the muscles in fractures; the construction of joints in reference to luxations; a knowledge of the parts incised in amputations; how the parts influence and direct the progress of abscesses; a knowledge of the lymphatics in reference to pyogenic and carcinomatous infections; a knowledge of the position and relation of the abdominal organs necessary for diagnostic and operative purposes; also those of the chest; cerebral localization, paralysis, etc., and innumerable other facts. Attention is given to the relation of the various tissues and organs to each other, so that the operations on those parts may be understood. It is the object of the course to present to the student the subject of anatomy in such manner as to enable him to utilize it in forming diagnoses and applying methods of treatment.

Instruction is given by demonstrations. These embrace the living and dead body and anatomical preparations. Special dissections and preparations are made to illustrate and explain fractures, dislocations, amputations, ligation of arteries, the position and relation of organs by frozen sections, etc., and also by injections of wax, the affections of the joints, palmar and other abscesses, etc.

A final examination, both written and practical, is held at the completion of the term.

BACTERIOLOGY AND HYGIENE.

ALEXANDER C. ABBOTT, M.D., Sc.D., DR.P.H., PEPPER *Professor of Hygiene and Bacteriology.*

DAVID H. BERGEY, A.M., M.D. *Assistant Professor of Bacteriology.*

NATHANIEL GILDERSLEEVE, M.D....*Associate in Bacteriology.*

HARRY A. SCHATZ, M.D.....*Second Assistant in Bacteriology.*

SYLVESTER J. DEEHAN, M.D.....*Third Assistant in Bacteriology.*

HENRY FIELD SMYTH, M.D., DR.P.H., THOMAS A. SCOTT *Fellow in Hygiene.*

HENRY VAN DYKE STEWART, B.S.. GEORGE B. WOOD *Fellow in Hygiene.*

BACTERIOLOGY.

I. LECTURES. *Professor Abbott*.—A course of lectures preliminary to the practical work of the first-year students is given, one lecture weekly, during the first term. This course comprehends those elementary phases of the subject with which the student should be familiar at the time he begins his practical work.

II. LABORATORY COURSE. *Professor Abbott, Assistant Professor Bergey, Drs. Gildersleeve, Schatz and Deehan.*—The course of lectures is followed by the laboratory exercises. These begin about February 1 and continue until the end of the session.

The number of hours given to the practical work in this branch is about one hundred and ninety to each student of the First-year Class. During this time students receive instruction in the use of the microscope in bacteriological work; the methods of cultivating bacteria and of isolating them in pure cultures; the steps necessary to the identification of particular species of bacteria; the relation of bacteria to infection; the methods of immunization and vaccination; the methods of sterilization and disinfection; the testing of disinfectants; the bacteriological study of air, water and soil, etc. Such students as demonstrate ability to advance beyond the class work are given the opportunity to do so and are encouraged to pursue such studies providing the latter do not interfere with hours assigned to other subjects.

The course in detail covers the following subjects:

1. Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.
2. Culture media, methods of preparation, sterilization methods.
3. Characteristics of cultures of bacteria in general and of special forms.
4. Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.
5. Microscopic technique. Use and care of instruments, staining from cultures, section cutting, and staining and mounting of tissues.
6. Pathogenic bacteria isolation, identification and inoculation.

7. Disinfection, thermal and chemical, methods and apparatus, modes of testing efficiency.
8. Bacteriological investigation of water.
9. Bacteriological investigation of air.
10. Bacteriological investigation of soil.
11. Studies in immunity, including: the antitoxic state and the modes of inducing it; protective vaccinations with living and dead viruses; and the opsonic theory.
12. Demonstration of such protozoa as are known to be of medical significance.

HYGIENE.

III. LECTURES. *Professor Abbott.*—The teaching in Hygiene consists of a course of systematic lectures to the Fourth-year Medical students, and, if time be available, of practical exercises in the laboratory. The didactic course is compulsory for all students receiving the degree of Doctor of Medicine, while the practical course is voluntary.

The lectures are given twice weekly throughout the first term. They cover the following topics of general sanitary importance:

A consideration of the factors concerned in the direct causation of disease, and the manifold conditions of life that indirectly favor the occurrence of disease among individuals, groups of individuals and communities.

A brief sketch of the important transmissible and epidemic diseases, embracing a discussion of their modes of transmission, portals of infection, geographical and seasonal distribution and the approved methods of their prevention.

A consideration of prophylaxis in general, embracing disinfection and disinfectants, protective vaccination and the antitoxic state, the disposal of the dead after infectious diseases, and quarantine.

The atmosphere, from the chemical, physical, and biological standpoints; the air of enclosed spaces; the problems of ventilation and heating; the various pollutions of the atmosphere, such, for instance, as those from the soil, from industries, from sewers, etc., and their influence on health and disease.

Water—its sanitary significance; the characteristics of waters from various sources and their suitability to domestic needs; the pollutions to which waters from different sources are liable; the biological significance of these pollutions; interpretations of the results of analyses; natural and artificial purification of waters; the relation of water to health and disease.

Sewage—the part taken by the soil and its constituents in the dis-

posal of organic waste; the characteristics of sewage from different sources; the various methods for the disposal of sewage; the influence of sewage disposal upon the health of communities.

IV. PRACTICAL COURSE. *Professor Abbott and Assistant Professor Bergey.*—The following subjects, arranged especially for the needs of those students intending to enter upon the practical pursuit of sanitary work, are taken up:

1. The atmosphere, climate and meteorological observations and records, chemical analysis, bacteriological investigation, methods of investigation, methods of ventilation and heating.

2. Water—physical, chemical and bacteriological investigation of water-supplies; methods of obtaining samples; qualitative and quantitative analysis for impurities; collection, storage and purification of water intended for domestic use; effects of filters, aeration, etc.

3. Sewage disposal, sewers, house drainage and the air of sewers.

4. Disposal of refuse, cremation of garbage, etc.

5. Soils and building sites, physical, chemical and bacteriological investigation, soil and moisture, ground air.

6. Foods—adulteration, milk and meat inspections.

7. Clothing—microscopic examination, poisonous dyes.

8. Management of contagious diseases. Practical tests of different methods of disinfection, chemical and thermal; notification, isolation and quarantine.

9. Vital statistics, registration and methods of tabulation

10. Offensive and dangerous trades.

V. COURSE IN PUBLIC HYGIENE. (See page 84.)

VI. ORIGINAL INVESTIGATION. In addition to the foregoing set courses, facilities are offered by the Laboratory for special work. Students and graduates of this school or elsewhere will find opportunities for advanced work in any of the subjects properly coming within the scope of the Laboratory. Arrangements for such work can be made by correspondence with the Director of the Laboratory.

TOXICOLOGY.

JOHN MARSHALL, M.D. *Professor of Chemistry and Toxicology.*

LEON A. RYAN, PH.D. *Assistant Professor of Chemistry.*

HOWARD L. MARSH, M.S. *Assistant Instructor in Chemistry.*

The course in toxicology is given in the second term of the second year of the medical course. One lecture and one period of laboratory instruction are given each week. The laboratory course includes

principally the application of qualitative chemical tests to individual poisons and also their separation, and identification, from food stuffs and animal tissues. The identification of blood stains on fabrics, etc., is also part of the course. Especial attention is devoted to the medico-legal aspects of the subject.

PHYSIOLOGICAL CHEMISTRY.

ALONZO ENGLEBERT TAYLOR, M.D. BENJAMIN RUSH *Professor of Physiological Chemistry.*
A. I. RINGER, M.D. *Instructor in Physiological Chemistry.*
H. B. LEWIS, PH.D. *Instructor in Physiological Chemistry.*

Instruction in Physiological Chemistry is given during the first year of the medical course. The schedule includes four hours of lectures, three hours of recitation and twelve hours of laboratory work per week for one-half of the academic year. Since all students enter the department with one year of collegiate chemistry and physics, the work of the course in physiological chemistry is confined to organic and strictly physiological chemistry. Following a brief survey of the field of organic chemistry, the course of instruction comprises a systematic survey of the field of physiological chemistry, particular attention being devoted to metabolism. The viewpoint of the course is physiology, interpreted from the modern concepts of physics and chemistry. Especial attention is paid to the instruction in analysis, in order that the future physician may be properly equipped to judge and to use approved physical and chemical methods in the investigation of morbid physiology.

The research laboratories of the department are open to workers qualified to undertake original investigations in physiological chemistry.

Graduate Work: Qualified students may elect physiological chemistry, in accordance with the regulations of the Graduate Council.

PHYSIOLOGY.

EDWARD T. REICHERT, M.D., Sc.D. *Professor of Physiology.*
EDWARD LODHOLZ, M.D. *Assistant Professor of Physiology.*
REUBEN A. BOGIA, M.D.
J. GARRETT HICKEY, M.D., D.D.S.
FREDERICK O. WAAGÉ, M.D.
JAMES GARRETT MCCOLLIN, M.D. } *Assistants in Physiology.*

The instruction in Physiology embraces systematic courses of lectures, practical work by the student, demonstrations and conferences given during and extending throughout the second year. The students, therefore, before entering upon their work in this department, have been trained in Physiological Chemistry, Anatomy and Normal Histology.

I. LECTURES. *Professor Reichert.*—Four lectures a week on the general subject of Nutrition, from the last Monday in September to February 1.

II. LECTURES. *Professor Reichert.*—Four lectures a week on the Heat Mechanism and the Nervous and Muscular Systems, from February 1 to the end of the session.

The lectures are copiously illustrated by tables, charts, diagrams and drawings, this being supplemented and considerably extended by the courses of instruction in the demonstration-room and laboratory.

III. STUDENTS' LABORATORY WORK, IN ILLUSTRATION AND EXTENSION OF COURSE I. *Professor Reichert, Dr. Lodholz and assistants.*

IV. STUDENTS' LABORATORY WORK, BEARING A SIMILAR RELATION TO COURSE II. *Professor Reichert, Dr. Lodholz and assistants.*

The course of practical work has been carefully and systematically planned, chiefly upon the *inductive* method of instruction, and seven hours a week are assigned to each student for this work, together with demonstrations and conferences. The main objects sought in the laboratory are: the illustration of the lectures by the most impressive methods; the supplementation of collateral work to further impress important fundamental facts and broaden their application; the training in the use of instruments of precision, with especial reference to the use of apparatus in clinical and experimental medicine; the cultivation of the individual's power of observation and deduction; the encouragement of accuracy of expression and method, of collateral work, and the co-ordination of facts.

The instruction in the practical work is given under the direction of the Professor of Physiology by the Instructor and his assistants. Each student is assigned a table and the necessary apparatus, and works under the direct supervision of the teaching staff. He is directed in technique and in what to observe, but he is self-dependent as to his results and conclusions, which he must present for examination in the form of "graphic records" and written records at the end of each exercise.

V and VI. DEMONSTRATIONS. *Dr. Lodholz and assistants.*—Two corresponding series of demonstrations, which take the place of practi-

cal work when the latter is of a character too difficult or otherwise undesirable for the student to pursue; as, for instance, work involving the use of complicated or very expensive apparatus, the employment of mammals, etc. These demonstrations are given in their proper relation to other instruction in physiology.

VII. CONFERENCES. *Dr. Lodholz and assistants.*—Conferences, which cover the subject-matter of the lectures, are held at appropriate times.

VIII. JOURNAL CLUB. Recent work in Physiology is reported by the members of the department, and by those actively engaged in research and advanced work in the laboratories.

IX. SEMINAR. Problems under investigation in the department are introduced for the mutual advantages of discussion. Conducted by Professor Reichert and the staff of the department.

X. GRADUATE COURSES. *Professor Reichert.*—These courses are arranged to suit the requirements of those presenting themselves for the work. Rooms and apparatus are placed at the disposal of such students, and every facility is offered for the prosecution of research.

XI. ELECTIVE COURSES IN ADVANCED PHYSIOLOGY. *Professor Reichert.*—These are offered to students of the third and fourth years in Medicine. The intention is to give to those who may desire it an opportunity to continue the laboratory work of the previous year in ways that are impossible with large classes, and as a foundation for the prosecution of research.

XII. RESEARCH. The laboratory offers all the advantages of its facilities and equipment for the investigation of problems in Physiology. This may be arranged for at any time by communicating with Professor Reichert.

PATHOLOGY.

ALLEN J. SMITH, M.D.	<i>Professor of Pathology.</i>
PAUL A. LEWIS, M.D.	<i>Assistant Professor of Pathology.</i>
ROBERT A. KEILTY, M.D.	<i>Instructor in Pathological Histology.</i>
F. D. WEIDMAN, M.D.	<i>Instructor in Gross Morbid Anatomy.</i>
JOHN A. KOLMER, M.D.	<i>Instructor in Experimental Pathology.</i>
FREDERICK C. NARR, M.D.	<i>Assistant Instructor in Pathology.</i>
ERWIN P. FABER.	<i>Instructor in Drawing.</i>

SURGICAL PATHOLOGY.

JOHN SPEESE, M.D.	<i>Instructor in Surgery and in Surgical Pathology.</i>
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KARL SCHÄFFLE, M.D. *Assistant Instructor in Surgical Pathology.*

GEORGE W. OUTERBRIDGE, M.D. *Assistant Instructor in Surgery and in Surgical Pathology.*

NEUROPATHOLOGY.

WILLIAM G. SPILLER, M.D. *Professor of Neuropathology.*

ALFRED R. ALLEN, M.D. } *Associates in Neuropathology.*
S. D. LUDLUM, M.D. }

SAMUEL LEOPOLD, M.D. } *Instructors in Neuropathology.*
WILLIAMS B. CADWALADER, M.D. }

GYNECOLOGICAL PATHOLOGY.

JOHN G. CLARK, M.D. *Professor of Gynecology.*

CHARLES C. NORRIS, M.D. *Assistant in Gynecological Pathology.*

OPHTHALMIC PATHOLOGY.

GEORGE E. DE SCHWEINITZ, M.D. *Professor of Ophthalmology.*

GORDON J. SAXON, M.D. *Assistant in Ophthalmic Pathology.*

OTOLOGICAL PATHOLOGY.

B. ALEXANDER RANDALL, M.D. *Professor of Otology.*

RALPH BUTLER, M.D. *Assistant in Otological Pathology.*

DERMATOLOGICAL PATHOLOGY.

M. B. HARTZELL, M.D. *Professor of Dermatology.*

F. C. KNOWLES, M.D. *Assistant in Dermatological Pathology.*

Instruction in Pathology extends over the second and third years of the medical curriculum. The plan of instruction embraces a general course in pathology under the direct supervision of the chair of Pathology, and a group of courses of applied special pathology, limited to the third or fourth year, in charge of the staff of instructors of the clinical branches concerned. In this latter group, which looks eventually toward the presentation of all special applications advantageously taught by laboratory methods, there have thus far been organized laboratories of Surgical Pathology, Neuropathology, Gynecological Pathology, Ophthalmologic Pathology, Otological Pathology, and Dermatological Pathology. In each division of the subject except the last four named, the plan of teaching includes systematic lectures, demonstrations and practical class exercises.

The general instruction in pathology includes the following courses:

I. GENERAL PATHOLOGY. *Professor Smith and assistants.*—This subject is given to the Second-year Class. Three lectures each week for the first half of the term are devoted to the various retrograde and progressive elementary pathological processes, to regeneration, inflammation, the specific inflammations, tumor formation and to teratology. In the laboratory of pathological histology, each student devotes three periods of two and one half hours each week to the study of illustrative tissues by the microscope, the gross features of the processes discussed being correlated by frequent demonstration of material in the laboratory or in lectures. The projection microscope is employed as an additional means of demonstration of the histological preparations, the essential features of each lesion being pointed out upon the screen to the student at the beginning of the study period.

II. SPECIAL PATHOLOGY. *Professor Smith and assistants.*—Instruction in the special pathology of the various organs, with particular reference to the pathological physiology of each and the development of symptoms of disease, is taken up systematically in lectures in the second half of the second year; and in the laboratory of pathological histology the minute changes of the more important diseases of each organ are studied in as close relation as possible with the lecture instruction. At the same time brief demonstrations of the gross appearances of the diseased organs are made; and whenever profitable experimental work is introduced for the elucidation of special problems.

In the third year the lectures on special pathology are continued two hours each week—the entire lecture work of this division covering one and one-half years. A brief course, largely demonstrative and individual, upon the principles of immunity and serum diagnosis is included in this course.

III. During the third year each student, for two hours each week, studies the accumulated autopsy material and especially selected and museum preparations, systematically and by the "case" method. After a preliminary demonstration of the method of performing autopsies, the class is divided into small sections, and as autopsies are being performed in the University Hospital and Philadelphia General Hospital, the students are required to attend, and participate in the work. In the fourth year the students of the various ward classes in the University Hospital attend the autopsies upon those subjects with whose clinical course each class has been familiar in the wards; special instruction, attempting to correlate the pathological findings with the known symptoms of the case in life, being given. Opportunity for the comple-

tion of such investigations by histological and bacteriological methods is afforded the student in the laboratories of the department.

IV. ADVANCED WORK.—With the increased space and added facilities afforded by the McManes Laboratory of Pathology the department offers to advanced and post-graduate students special courses in experimental pathology, immunology and serum diagnosis, animal parasitology, pathological histology, museum and autopsy work; and opportunity is afforded those suitably trained to undertake special investigations.

In addition to the above, the following work is presented by the various clinical groups in the special departments of the McManes Laboratory of Pathology (the courses VIII, IX and X, however, not given the undergraduate classes):

V. SURGICAL PATHOLOGY.—(See also *Surgery*.)

Dr. Speese.—Demonstrations of charts, gross specimens and microscopic specimens, to each member of the class, one and one-half hours a week. This course is supplemental to Dr. Müller's lectures, and aims to present specimens illustrative of the principal surgical diseases. The following subjects are among those demonstrated: repair of wounds, suppuration, abscess, gangrene, ulcer, fistula, sinus; diseases of the thyroid, salivary and mammary glands; repair after fracture, diseases of bones, joints, ligaments, bursæ; diseases of the digestive tract, including the lip, tongue, stomach, gall bladder, liver, pancreas, intestine, appendix and rectum; diseases of the kidney, ureter, bladder, prostate, penis, scrotum and testicle; tumors about the jaw, connective tissue tumors, epithelial skin tumors; diseases of the lymphatic system.

VI. NEUROPATHOLOGY. *Dr. Spiller.*—(See *Neurology*, page 67.)

VII. GYNECOLOGICAL PATHOLOGY. *Dr. Chas. C. Norris.*

VIII. OPHTHALMIC PATHOLOGY. *Dr. Gordon J. Saxon.*

IX. OTOLOGICAL PATHOLOGY. *Dr. Ralph Butler.*

X. DERMATOLOGICAL PATHOLOGY. *Dr. F. C. Knowles.*

PHARMACOLOGY.

ALFRED N. RICHARDS, PH.D.....	<i>Professor of Pharmacology.</i>
WILSON G. WOOD, M.D.....	<i>Instructor in Pharmacology.</i>
OSCAR H. PLANT, M.D.....	<i>Instructor in Pharmacology.</i>

Instruction in pharmacology is given during the second and third years and is required of all candidates for the degree of Doctor of Medicine.

SECOND YEAR. LECTURES. *Professor Richards.* Two hours weekly throughout the year.

In the lectures the physiological action of the important drugs is systematically considered, emphasis being laid upon those features in action which are of importance in relation to therapeutic use or toxicological effects.

CONFERENCES. *Drs. Wood and Plant.*

Two sections, one hour weekly throughout the year.

The conferences are devoted to informal discussion of the subjects studied in lectures and text book.

LABORATORY WORK IN MATERIA MEDICA AND PHARMACY. *Professor Richards, Drs. Wood and Plant.* Two sections, five hours weekly, November 25 to January 25.

The laboratory work of the first half year includes the practical study of the general physical and chemical properties of the active constituents of drugs; practice in pharmaceutical methods of manufacture, at least one sample of each type of pharmacopeial preparations being made by each student; the study of incompatibilities and of prescription compounding. Together with this work in the laboratory the subject of prescription writing is taken up, the student being required to write each week a number of prescriptions including substances and preparations already studied in the laboratory. A portion of each laboratory period is devoted to criticism of these prescriptions with demonstrations.

LABORATORY WORK IN PHARMACOLOGY. *Professor Richards, Drs. Wood and Plant.* Two sections. Two and one-half hours weekly, February 1 to June 1.

The laboratory work of the second half year is devoted to the practical study of drug action. Each section of the class is subdivided into groups of two, three or four students as occasion demands, and each of these smaller groups, under adequate supervision, performs experiments which demonstrate the action exerted by drugs upon the important physiological mechanisms—nervous system, respiration, circulation, kidney, gastro-intestinal tract, etc. Important experiments which cannot be successfully performed by students are shown in demonstration.

THIRD YEAR. PRACTICAL THERAPEUTICS. *Dr. Wood.* Two sections. One and one-half hours weekly, December 1 to June 1.

In this course pharmacology is studied in relation to definite problems in the treatment of disease. In it, the more important features in a variety of conditions of disease are outlined and histories of cases

previously studied by the instructor in charge are given out. The student is required to plan drug treatment based, in so far as is possible, upon the known action of the drugs which might be chosen and the nature of the conditions to be treated, and to write the prescriptions and instructions covering it. These outlines and prescriptions are critically discussed in the light of the results of the treatment which was actually applied in the cases studied. In arrangement, this course follows as closely as possible the subjects taken up in the course on Applied Therapeutics (Department of Medicine).

RESEARCH. The research laboratories of the department are open to a limited number of qualified workers.

MEDICINE.

ALFRED STENGEL, M.D., Sc.D.....	<i>Professor of Medicine.</i>
DAVID RIESMAN, M.D.....	<i>Professor of Clinical Medicine.</i>
JOSEPH SAILER, M.D.....	<i>Professor of Clinical Medicine.</i>
M. HOWARD FUSSELL, M.D.....	<i>Professor of Applied Therapeutics.</i>
GEORGE W. NORRIS, M.D.....	<i>Assistant Professor of Medicine.</i>
H. R. M. LANDIS, M.D.....	<i>Assistant Professor of Medicine.</i>
WILLIAM PEPPER, M.D.....	<i>Assistant Professor of Clinical Pathology.</i>
ARTHUR A. STEVENS, M.D.....	<i>Lecturer on Medicine.</i>
B. FRANKLIN STAHL, M.D.....	<i>Lecturer on Dietetics of the Sick and Associate in Medicine.</i>
HERMAN B. ALLYN, M.D.....	<i>Associates in Medicine.</i>
ALBERT P. FRANCINE, M.D.....	
H. B. AUSTIN, M.D.....	
E. H. GOODMAN, M.D.....	
GEORGE MORRIS PIERSOL, M.D.....	
O. H. PERRY PEPPER, M.D.....	
F. H. KLAER, M.D.....	
JOHN M. CRUICE, M.D.....	<i>Instructors in Medicine.</i>
CLIFFORD B. FARR, M.D.....	
THOMAS A. COPE, M.D.....	
FRANK A. CRAIG, M.D.....	
ROBERT G. TORREY, M.D.....	
C. M. MONTGOMERY, M.D.....	
J. H. MUSSER, M.D.....	
WARD BRINTON, M.D.....	
NORMAN B. GWYN, M.D.....	

THOMAS C. KELLY, M.D.	}	Assistant Instructors in Medicine.
A. H. HOPKINS, M.D.		
E. B. KRUMBHAAR, M.D.		
A. A. HOWELL, M.D.		
ARTHUR H. GERHARD, M.D.		
T. G. MILLER, M.D.		
H. B. WILMER, M.D.		
GEORGE WILSON, M.D.		

Outline.—The course in Medicine is a systematic one, beginning in the second half of the second year and leading up to the abundant opportunities for individual study of cases assigned to the students as ward workers in the fourth year. The details regarding the instruction are given later; the main features in the several years are as follows:

SECOND YEAR. *Physical Diagnosis.*—Lectures and practical work begin during the second half of the year. The course is designed to teach the principles of physical diagnosis with exposition of the physical laws involved. Reference to diseases is avoided, but the bearing of physiological and anatomical facts on clinical investigation is emphasized.

THIRD YEAR. *Practical work in the Medical Dispensary.*—The students in small sections attend the Medical Dispensary for two hours one day in the week throughout the year and in larger sections, one hour per week during one-third of the year. They are required to prepare histories, make physical examinations and assist in the work of the dispensary. The instructors demonstrate cases and correct the work done by the students.

Laboratory work in Clinical Pathology.—One lecture weekly to the whole class and section work of two hours one day in the week (sixty hours) throughout the year, comprise the work in this branch.

Observation Classes and Medical Clinics.—During the first half of the year the class attends clinical demonstrations of cases presented in groups to illustrate the external features of diseased conditions. During the second term two clinics weekly are given to extend the student's knowledge of disease.

Systematic Lectures.—The class with the fourth-year class attends two lectures weekly. These lectures are intended to present the relations of the fundamental sciences to practical medicine with sufficient attention to the systematic description of diseases to enable the student to grasp the meaning of the fundamental sciences in their relations to practical medicine.

Applied Therapeutics.—Two lectures weekly, illustrated by clinical cases, are given throughout the year to supplement the didactic lectures on medicine.

Dietetics of the Sick.—Lectures and practical demonstrations.

FOURTH YEAR. Ward Work.—Sections of the class are assigned to the wards of the University Hospital, the Philadelphia General Hospital and the Phipps Institute. During their work in these hospitals cases are assigned to the students so that each one has charge under the instructors and resident physicians of a certain number of cases and is required to record histories, daily notes of progress and the results of treatment and to make all necessary laboratory examinations. The student is in the wards three hours during five days in the week, and one hour daily one of the instructors makes rounds accompanied by the students in the ward.

Ward Classes.—A limited number of ward classes for a thorough and advanced discussion of important clinical conditions is held at the Philadelphia General Hospital.

Clinical Conferences.—The Professor of Medicine and the Professors of Clinical Medicine each give before the whole class one clinical conference in Medicine with the active co-operation of the students for the time being in attendance in the medical wards of the University or Philadelphia Hospital.

Systematic Lectures.—The class with the third-year class attends two lectures weekly as before described.

In general the course of instruction is so arranged that beginning in the second year the greatest amount of aid and personal instruction is given to the student in the earlier period of his studies and less supervision is exercised as his experience increases. The object is to encourage independence of work and thought as far as may be advantageous.

SECOND YEAR.

PHYSICAL DIAGNOSIS.—*Dr. Norris* gives lectures and demonstrations on physical diagnosis one hour a week during the last half of the year. These are devoted to an exposition of the general principles of the subject rather than to a study of the physical signs in special diseases.

In addition to the lectures, each student has two hours' practical work a week under Dr. Norris and his assistants, the class being divided into small sections. These classes are devoted almost entirely to normal conditions, the signs of disease being used only as an occasional contrast to the normal, the actual study of signs of special diseases being carried out in the third year.

THIRD YEAR.

SYSTEMATIC LECTURES.—*Professor Stengel* lectures twice weekly to the third and fourth year classes completing in the two years the study of medical diseases. These lectures are intended as a general exposition of the relations of the fundamental sciences to practical medicine with a sufficient systematic description of diseases to furnish a basis for further study. In addition to the lectures topics for reading are assigned so that the student may be guided in his work.

OBSERVATION CLASSES.—*Dr. Stevens* conducts these classes, with the special purpose of training the student's powers of observation in recognizing the meaning of the objective signs of disease.

MEDICAL DISPENSARY.—The class is divided into small sections and assigned to the Instructors in the Medical Dispensary—*Dr. Klaer and his assistants*. The students take histories of new cases, make physical examinations and assist in the work of the Dispensary. Demonstrations of selected cases are made by the Instructors and various methods of clinical investigation are carried out with the assistance of the students.

One hour each week the whole class divided into three sections meets *Drs. Klaer, Piersol and Goodman* in the Medical Dispensary for special demonstrations designed to aid them in their individual work just described.

Besides the regular work, many students avail themselves of the opportunities offered to act as clerks in the Dispensary of the University Hospital throughout the year, and in the same place or elsewhere during vacations.

APPLIED THERAPEUTICS.—*Professor Fussell* lectures twice weekly to the third-year class, with illustrative cases as the basis of discussion of methods of treatment. All forms of medical and non-medical therapeutics are discussed and as far as possible demonstrated before the students.

MEDICAL CLINICS.—During the second term *Drs. William Pepper and G. W. Norris* conduct clinics at the University Hospital, each one hour weekly. These are designed to advance the clinical experience of the students after the systematic lectures and dispensary work have prepared them for further clinical work.

CLINICAL LABORATORY COURSE.—*Dr. William Pepper* gives a lecture and demonstration one hour a week to the third-year class, and with *Dr. Cope* conducts the laboratory exercises. In these the class is divided into sections, each section receiving two hours' work each week, in practice on the methods of chemical and microscopical examination of the urine, blood, sputum, stomach contents, feces, etc.

DIETETICS OF THE SICK. *Dr. B. Franklin Stahl.*—One lecture a week during the last half of the year is given, with the purpose of providing the students an understanding of foods and their composition and preparation, and demonstrations are given of the methods of preparing various foods suitable for different individuals, the demonstrations being made sufficiently elementary to be readily comprehended and remembered, and to illustrate the influence of cooking upon the food selected. The dietetic treatment of the various diseases is later taken up. The diet in disease is illustrated by showing trays of food prepared for patients suffering from diseases under consideration, and thus practical lessons are provided exhibiting the variety of diet that may be secured from a limited number of food materials.

FOURTH YEAR.

SYSTEMATIC LECTURES. (See Third Year.)

CLINICAL CONFERENCES.—*Professors Stengel, Riesman and Sailer* take up, in a systematically subdivided course, the discussion of all the important medical conditions, so that the whole subject may be illustrated so far as this is feasible—dangerously contagious diseases and others that do not occur in this region being, of course, excepted.

In these conferences, students who have studied the cases in the wards are called to the bedside before the class and discuss the cases with the lecturer, and at times contribute short papers on specially assigned subjects.

In all the above classes the students in charge of the case are required to report completely on the case in hand, including the history and general examination and any desirable clinical laboratory findings, the examination of the blood and urine being always required.

The conferences deal especially with questions of diagnosis or treatment.

WARD CLASSES.—*Drs. Stevens, Stahl and Allyn* meet sections three times weekly at the Philadelphia Hospital in advanced ward classes which deal especially with differential diagnosis and treatment. Drs. Francine and Repplier meet one-third of the class for two hours each week and demonstrate especially important cases from the rich material in the tuberculosis wards at the Philadelphia Hospital.

WARD WORK.—The medical ward work is arranged in periods of five weeks' continuous service in the medical ward at the University Hospital, five weeks at the Philadelphia Hospital and five weeks at the Phipps Institute. At the latter place the work is subdivided into a period in the wards studying non-tuberculous subjects under Dr. Craig, work in the Dispensary on cases of varied character

under Drs. Landis and Montgomery, attendance at "tuberculosis classes" under Dr. Landis, and a period of service outside in the social work of the Institute in which the student has opportunity to meet some of the problems of home treatment as regards general hygiene, diet, occupation and various other practical problems of treatment, especially among the poor. In addition to the remarkable opportunities for studying chest disorders especially, that the Phipps Institute affords, a striking collection of anatomical and pathological preparations has been provided there which greatly illuminate questions of chest diagnosis.

Professor Fussell and Dr. Wood meet small sections for bedside discussion of practical therapeutics.

At the University Hospital there are regular ward rounds on five days of the week by Professor Stengel and Drs. J. H. Austin and O. H. P. Pepper, and at the Philadelphia Hospital by Professors Riesman and Sailer, and Drs. Torrey, Farr and Krumbhaar. Some or all of these teachers are in the wards practically all of each morning, and the students are thus under supervision constantly, and advice is always at hand; but their work is done by themselves and at the ward rounds reports are made to the instructor of the nature, progress, etc., of each case by the student assigned to it, each student having several cases under his care. The group have opportunity to see all special kinds of treatment that goes on in the ward and to follow, and to some extent to suggest, the treatment of the cases under observation.

Each student thus gets over three months' experience in the medical wards, working three hours five mornings in the week, which is comparable to that of a hospital interne, with the addition of constant aid and advice from senior instructors.

LABORATORY WORK.—Each student of the fourth-year class is supplied with a working place in the Clinical Laboratory, which is immediately adjacent to the hospital wards, where he is furnished with a locker containing all necessary apparatus. He is required to make routine examinations, in which assistance is available when needed, of all material from patients assigned to him in any of the departments during his final year. The laboratory is open at all times during the day, and the student has access to his working place at any leisure time for such work, or for any other laboratory work that he may desire to carry out. At the Phipps Institute laboratory facilities are provided for the students working there.

OTHER EXTRAMURAL TEACHING.—The roster is arranged so that the students of the third-year class are free to attend the medical clinics at the Pennsylvania or Philadelphia Hospitals on Saturdays. Other

medical clinics may also be attended by the members of the same class, and volunteer work in connection with various other hospitals is easily secured, particularly during vacation.

CLINICO-PATHOLOGICAL DEMONSTRATIONS.—All autopsies held at the University Hospital will be attended by the students on duty in the ward in which the case under examination occurred. The pathologist conducts the autopsy, the clinicians in charge of the case first explaining the clinical aspects of the condition.

NUMBER OF HOURS DEVOTED BY EACH STUDENT TO MEDICINE.

	<i>Second Year.</i>	Hours
Lectures—Physical Diagnosis.....		16
Practical Work—Physical Diagnosis.....		48
<i>Third Year.</i>		
Systematic Course in Medicine.....		64
Systematic Therapeutic Course.....		64
Observation Classes.....		16
Dispensary.....		96
Clinical Laboratory Course.....		92
Clinical Medicine.....		32
Lectures on Dietetics of the Sick.....		16
<i>Fourth Year.</i>		
Systematic Course in Medicine.....		64
Clinical Conference.....		112
Ward Classes.....		16
Ward Work.....		160
Lecture on History of Medicine.....		16
		<hr/>
Medical Research—Elective.....		64
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		876

PEDIATRICS.

J. P. CROZER GRIFFITH, M.D.....	<i>Professor of Pediatrics.</i>
THOMPSON S. WESTCOTT, M.D.....	<i>Associates in Pediatrics.</i>
MAURICE OSTHEIMER, M.D.....	
CHARLES A. FIFE, M.D.....	
HOWARD C. CARPENTER, M.D.....	
J. CLAXTON GITTINGS, M.D.....	<i>Instructors in Pediatrics.</i>

The course in Pediatrics consists of lectures, ward classes and ward work at the University Hospital, the Philadelphia Hospital and the Children's Hospital.

The lectures are conducted by the Professor of Pediatrics in the medical amphitheatre of the University Hospital once a week. Special lectures are given upon the general diagnosis, symptomatology and treatment of disease in children. The more important subjects receive systematic and full discussion, among these being such topics as pneumonia of childhood, gastrointestinal diseases, typhoid fever in infancy and childhood, forms of paralysis, the feeding of infants, etc., etc. In addition to these, the Children's Ward and Dispensary are drawn upon for clinical lectures on the various diseases presenting themselves.

The ward classes are conducted at the University Hospital by Dr. Ostheimer, at the Children's Hospital by Dr. Westcott, and at the Philadelphia Hospital by Drs. Carpenter and Fife. Subsections of the class, consisting of from eight to fifteen students, attend these ward classes three times a week and have the opportunity of examining the patients under the direction of the instructor, and in addition learn the practical management of the diseases of children as conducted in the Hospital wards. The exceptional richness and variety of material afforded by the Children's Hospital make this part of the course a valuable feature. In addition to the work mentioned, the students, in small groups, are assigned personal supervision of certain cases in the wards in the University Hospital, making daily observations of them and attending the ward visits of the assistant pediatric physicians, Drs. Ostheimer, Gittings, Fife and Carpenter.

PHYSICAL THERAPY.

R. TAIT MCKENZIE, B.A., M.D. *Professor of Physical Therapy.*

Instruction in this subject consists of a course of lectures upon the application of massage, hydrotherapy, heat, and light, in the treatment of disease.

These lectures begin in November and are given twice a week during the term at the Gymnasium or the University Hospital to members of the second-year class.

Special lectures are given from time to time to the fourth-year class.

The practical work and demonstrations are given in the Gymnasium and Department of Physical Therapy in the University Hospital.

SURGERY.

EDWARD MARTIN, M.D.....	JOHN RHEA BARTON <i>Professor of Surgery.</i>
JOHN B. DEAVER, M.D.....	<i>Professor of the Practice of Surgery.</i>
CHARLES H. FRAZIER, M.D.....	<i>Professor of Clinical Surgery.</i>
HENRY K. PANCOAST, M.D.....	<i>Professor of Roentgenology.</i>
ALFRED C. WOOD, M.D.....	<i>Assistant Professor of Surgery.</i>
J. EDWIN SWEET, M.D.....	<i>Assistant Professor of Surgical Research.</i>
RICHARD H. HARTE, M.D.....	<i>Adjunct Professors of Surgery.</i>
JAMES P. HUTCHINSON, M.D.....	
JOHN B. CARNETT, M.D.....	<i>Associates in Surgery.</i>
JOHN H. JOPSON, M.D.....	
GEORGE P. MÜLLER, M.D.....	
T. TURNER THOMAS, M.D.....	
JOHN SPEESE, M.D.....	<i>Instructors in Surgery.</i>
BENJAMIN A. THOMAS, M.D.....	
GEORGE G. ROSS, M.D.....	
ALBERT D. WHITING, M.D.....	
DAMON B. PFEIFFER, M.D.....	
A. P. C. ASHURST, M. D.....	
JOHN BUSCH, M.D.....	<i>Assistant Instructors in Surgery.</i>
CHARLES F. MITCHELL, M.D.....	
ELDRIDGE L. ELIASON, M.D.....	
KARL SCHÄFFLE, M.D.....	
GEORGE M. LAWS, M.D.....	
ROBERT H. IVY, M.D.....	
P. G. SKILLERN, M.D.....	
DE FOREST P. WILLARD, M.D.....	
W. F. GUILFOYLE, M.D.....	
ALEXANDER RANDALL, M.D.....	
L. H. LANDON, M.D.....	
GEORGE W. OUTERBRIDGE, M.D.....	
HERMAN E. ALBRECHT, M.D.....	
SERGEANT P. MARTIN, M.D.....	
J. C. BIRDSALL, M.D.....	
HENRY WINSOR, M.D.....	<i>Assistant Instructor in Operative Surgery.</i>

The course in Surgery extends over a period of two years—the third and fourth years—and is conducted by the Professor of Surgery, Professor of Practice of Surgery, Professor of Clinical Surgery, Professor of Roentgenology, Assistant Professor of Surgery, two Adjunct Professors, an Assistant Professor of Surgical Research, four Associates in Surgery and a corps of clinical instructors.

The course, which includes instruction in the principles and practice of surgery, in surgical pathology, in practical minor surgery, in operative surgery and in bedside, dressing room and dispensary practice, is so planned that the subject may be systematically covered in both theory and, in so far as this is practicable, in practice. The methods of teaching are designed to familiarize the student with the principles of pathogenesis, to develop his powers of observation, to familiarize him with the principles underlying treatment and to enable him, under supervision and subject to skilled criticism, to make practical application of this knowledge in the wards, the dispensaries, the clinical conferences and the operating room. Before graduation each student is required to have administered a general anæsthetic under skilled supervision to at least six patients.

The courses include: 1. Emergency Treatment. 2. Bandaging. 3. Minor surgery, including fracture dressings. 4. Surgical Pathology. 5. Dispensary service. 6. Clinical conferences and lectures. 7. Roentgenology. 8. Surgical research. 9. Operative surgery. 10. Ward classes. 11. Operating clinics. 12. Systematic lectures.

1. **EMERGENCY TREATMENT.** *Dr. Eliason.*—To the first-year class for one half the year. Lectures and practical demonstration.

2. **BANDAGING.** *Dr. Whiting.*—For half the term men of the second-year class are given individual instruction in the fundamental principles underlying the use of the bandage and in its practical application, this drill being continued until each man is sufficiently expert to become serviceable in dispensary practice and ward work.

3. **MINOR SURGERY.** *Dr. Wood, assisted by Dr. Eliason and Dr. Busch.*—Third-year class one hour a week throughout the year. In this course the following subjects are described and illustrated: Preparations for operation, including the various surgical dressings and materials employed and their application; Indications for drainage and methods for securing it; Hemorrhage; Shock; Fixed dressings; Adhesive plaster; External applications; Venesection; Transfusion; Hypodermoclysis; Proctolysis; Anesthesia; Sutures; Ligatures; Hypodermic injections; Aspiration; Tapping; Individual drill in fracture dressing.

4. **SURGICAL PATHOLOGY.** *Dr. Müller.*—One hour a week during

the first half of the fourth year. A clinical lecture illustrated by patients from the wards of the hospital. Minor diseases, such as wounds, cellulitis, ulcer, fistula, sinus, etc., are discussed and such available material as may correlate is shown. Especial emphasis is laid upon the etiology and pathology of these diseases. This course of lectures is conducted in correlation and supplemental to the course in the Laboratory of Surgical Pathology, in charge of Dr. John Speese (see under Pathology). See also under Systematic Lectures in Surgery.

5. DISPENSARY SERVICE. *Dr. B. A. Thomas, assisted by Drs. Laws, Ivy and Willard.*—One month of dispensary service is required of each student before graduation. In addition to the dispensary of the University Hospital, the Howard (*Dr. Eliason*) and the Pennsylvania Hospitals (*Dr. Mitchell*) are available. The student serves as an assistant, thus becoming familiar with the treatment of sprains, fractures, dislocations, wounds and surface infections which constitute the majority of affections attending an Out-Patient Department. He is also given the opportunity to perform such minor surgical operations as naturally belong to such a service. The full service is usually made up voluntarily during vacation periods.

6. CLINICAL CONFERENCES AND LECTURES. *Dr. Frazier* conducts a clinical conference for one hour weekly before the fourth-year class, at which are discussed major surgical topics. It is illustrated by patients, lantern slides and charts.

Dr. Wood and T. T. Thomas each one hour a week to sections of the fourth-year class, each section one third of the class. Patients are discussed by individual students in regard to the etiology, pathology and diagnosis and treatment of the surgical affections which they exhibit.

Dr. Carnett, one hour each week before the third-year class; clinical study of cases by individual students with discussion and criticism.

Dr. Eliason, one hour a week for half the year to the third-year class. Especial attention is given to minor conditions requiring surgical treatment. Performance of minor operations by students.

Dr. Ross, one hour a week for half the year to third-year men, a clinical lecture following the lectures of the professor of surgery and the operations of the professor of the practice of surgery.

Dr. Pfeiffer, one hour a week to the fourth-year class devoted to a clinical lecture upon subjects cognate to the clinics of Professor Deaver and to demonstrations of surgical after-treatment.

7. ROENTGENOLOGY. *Professor Pancoast.*—A series of lectures and demonstrations covering the diagnostic and therapeutic application of X-rays, and the interpretation of radiograms.

8. SURGICAL RESEARCH. *Dr. Sweet*.—This is an elective course open to a limited number of men of the third and fourth year classes who by inclination and personal qualities demonstrate an especial fitness for the practice of surgery. The object of the course is to give such qualified men opportunity to practice the fundamental principles of surgery in work upon research problems which bear directly upon the betterment of surgical practice.

9. OPERATIVE SURGERY. *Dr. Jopson, assisted by Drs. Ashhurst, Eliason, Laws, Speese and Skillern*.

The course comprises didactic instruction given to the third-year class and practical work upon the cadaver. The theory and technique are covered by a series of weekly lectures, the general principles of Operative Surgery being emphasized and the steps in the various operations illustrated by diagrams, lantern slides and demonstrations on the cadaver.

For the practical work the class is divided into sections which work in the Laboratory of Operative Surgery performing the various operations upon the cadavers under the supervision of Dr. Jopson and his assistants. Special attention is paid to the typical major operations, to those included under emergency surgery and to the acquirement by the student of facility in general operative technique.

An Elective Course in Operative Surgery under the charge of Dr. Ashhurst, assisted by Dr. Winsor and Dr. S. P. Martin, open to the fourth-year men, is also given and exceptional facilities have recently been provided in the furnishing of a special operating room and ample equipment for this work. The students in this course practice with full attention to detail all the operations which can be demonstrated upon the cadaver.

10. WARD CLASSES. *Drs. Carnett, Müller, Eliason, Ross, Whiting, Pfeiffer and Landon*.—One-third of the class six hours a week for one-third of the term. Surgical patients are assigned to individual students; each student is required to make a complete physical examination with special reference to surgical lesions, carry out such special tests as are indicated and follow the progress of each patient assigned to his care, keeping a written record of the results of bedside observation and study. Laboratory facilities are provided for each student so that he may examine the blood, feces and urine when this is required. X-rays are available when such pictures are needed. The student is directed and supervised in his work and is encouraged to make suggestions relative to the care and treatment of the patient. He assists at the operations performed upon patients under his charge and, under supervision, is permitted to dress the wounds.

II. OPERATING CLINICS. *Professors Martin, Deaver, Frazier and Wood, and Drs. Carnett, T. T. Thomas and Müller.*

Professor Deaver, one third the fourth-year class for two periods of two hours each for one third of the term. Special attention is given to surgical diseases of the abdomen and an opportunity is afforded to students assigned to a case to take part in the operation.

Professor Martin, one ninth of the fourth-year class for one period of three hours.

Professor Frazier, one ninth of the fourth-year class for two periods of an hour and a half.

Professor Wood and Drs. T. T. Thomas, Carnett and Müller, one ninth of the fourth-year class for a period of two hours.

12. SYSTEMATIC LECTURES. *Professor Martin*.—Two hours a week to the third and fourth year classes.

Dr. Müller, one hour a week to the third-year class covering the general subjects of injury, infection and tumors, including wounds, hemorrhage, shock, embolus, cellulitis, abscess, ulcer, gangrene, peritonitis, etc., benign and malignant tumors. The lectures are illustrated where possible by lantern slides, charts or patients from the hospital wards.

NUMBER OF HOURS DEVOTED BY EACH STUDENT TO SURGERY.

	<i>First Year.</i>	<i>Hours</i>
Emergency Treatment.....		16
<i>Second Year.</i>		
Bandaging.....		40
<i>Third Year.</i>		
Systematic Lectures.....		96
Clinical Lectures.....		96
Minor Surgery.....		32
<i>Fourth Year.</i>		
Surgical Pathology (two hours a week for one-half the class) ..		32
Systematic Lectures.....		64
Clinical Lectures		32
Surgical Clinics.....		53 ¹ / ₈
Surgical Ward Classes.....		32
Operative Surgery, Required.....		16
Ward Work.....		90 ⁷ / ₈

	Hours
Surgical Dispensary (Mural and Extramural; usually done in the vacation period).....	24
Total.....	624
Surgical Research, Elective.....	80
Operative Surgery, Elective.....	51
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	755

ORTHOPEDIC SURGERY.

G. G. DAVIS, M.D., M.R.C.S., Eng., LL.D.....	<i>Professor of Orthopedic Surgery.</i>
JAMES K. YOUNG, M.D.	<i>Associate Professor of Orthopedic Surgery.</i>
WALTER G. ELMER, M.D.	}
WILLIAM JACKSON MERRILL, M.D.....	<i>Instructors in Orthopedic Surgery.</i>
FRANK D. DICKSON, M.D.....	}
DE FOREST P. WILLARD, M.D.....	}
THOMAS A. O'HARA, M.D.....	<i>Assistant Instructors in Orthopedic Surgery.</i>

The instruction in Orthopedic Surgery is confined to the fourth year.

I. CLINICAL INSTRUCTION.—Clinical instruction is given one hour a week from February 1 to the close of the session. This course includes the surgical and mechanical treatment of congenital malformations, deficiencies and deformities; also of acquired distortions and deformities the result of disease or injury, joint and bone diseases, rickets, infantile spinal and cerebral paralysis, etc., etc.

II. WARD CLASS WORK. *Drs. Elmer, Merrill and Dickson.*—For ward teaching, the fourth-year class is divided into small sections which meet once a week during the entire session. Cases in the wards and dispensary are employed to perfect each student in personal diagnosis and treatment. Instruction is also given in the application of apparatus, plaster-of-Paris and corrective dressings; the construction of braces; the treatment of lateral curvature, paralysis, etc. Each student is expected personally to perform all the necessary manipulations.

A specially equipped orthopedic gymnasium connected with this department is in daily use for demonstrating methods for the correction of deformities and the development of muscular power.

III. WORK IN OUT-PATIENT DEPARTMENT. Dispensary work is continued daily throughout the year. Students desiring special practical work can arrange for certain periods in the Dispensary.

GENITO-URINARY DISEASES.

THOMAS R. NEILSON, M.D. *Professor of Genito-Urinary Diseases.*

E. HOLLINGSWORTH SITER, M.D. *Instructor in Genito-Urinary Diseases.*

ALEXANDER A. UHLE, M.D.
W. H. MACKINNEY, M.D.
JOHN L. LAIRD, M.D.
J. LEON HERMAN, M.D. } *Assistant Instructors in Genito-Urinary Diseases.*

Instruction in Genito-Urinary Diseases is given in the third and fourth years.

LECTURES. *Professor Neilson.*—To the third-year class, for one half of the year, a systematic course of lectures is given, covering the surgical diseases and injuries of the genito-urinary organs, including the venereal diseases.

WARD CLASSES. *Professor Neilson and Drs. Siter, Uhle, Mackinney, Laird and Herman.*—Ward classes, for which the class is divided into sections, are held three times a week throughout the year. The students are afforded excellent opportunity to become familiar with the methods of diagnosis and treatment of diseases of the genito-urinary apparatus by personal observation, and by practical work under the guidance of the teachers. House cases requiring operation are operated on by the professor before the class.

Subsections of the class receive instruction four times a week from Drs. Siter, Uhle, Mackinney and Laird in the Venereal Wards of the Philadelphia Hospital, the Genito-Urinary Dispensary of the University Hospital, and the Pepper Laboratory. The rich and abundant material at hand offers to the student unsurpassed opportunities for observation and study.

GYNECOLOGY.

JOHN G. CLARK, M.D. *Professor of Gynecology.*

BROOKE M. ANSPACH, M.D. *Associate in Gynecology.*

CHARLES C. NORRIS, M.D.
WILLIAM B. SMALL, M.D.
FLOYD E. KEENE, M.D. } *Instructors in Gynecology.*

The instruction in Gynecology extends throughout the third and fourth years and comprehends:

THIRD YEAR.

I. RECITATION AND LANTERN DEMONSTRATIONS. One hour a week devoted either to recitations or to lantern demonstrations by Professor Clark. It is intended that the demonstrations shall fully supplement the recitations, thus rendering as clear as possible the histologic, anatomic, and pathologic, as well as the operative side of Gynecology. The third-year instruction is entirely theoretic, and is intended to prepare the student for his practical work of the fourth year.

FOURTH YEAR.

II. CLINICAL WARD CLASSES. *Professor Clark or Dr. Anspach.*—Three times a week. The class is divided into sections, which attend the clinical ward classes. These sections are further subdivided into small groups of students who see all cases with the professor or instructors before any plan of treatment is instituted. The history of the case is carefully reviewed; and, instead of the usual clinical lecture preceding an operation, the special group of students for the day are closely quizzed on all points relative to diagnosis, treatment, and prognosis. Immediately after the operation, all points on the technique of the operation, the post-operative care of the patient, the possible complications, and the ultimate prognosis are fully considered.

III. CLINICAL CONFERENCE. *Dr. Chas. C. Norris and Dr. Floyd E. Keene.*—Once a week. During this Conference the clinical reporters for each ward class give in detail the histories of cases seen during the preceding week, with treatment and results. The instructor merely acts as a guide in these conferences, the students carrying the burden of the discussion.

DERMATOLOGY.

MILTON B. HARTZELL, A.M., M.D., LL.D....*Professor of Dermatology*
F. C. KNOWLES, M.D.....*Instructor in Dermatology.*

I. LECTURES.—One lecture weekly is given to the members of the entire third-year class, the subject-matter being descriptive of the commoner diseases of the skin as met with in this country. The lectures are abundantly illustrated by charts, paintings, photographs, lantern slides, and wax and papier-maché models. The course begins October 1 and terminates February 1.

II. CLINICS.—Once weekly to the third-year class, February 1 to the close of the session. A number of cases are exhibited and commented on in such a manner as to render the clinical features of the disease plain.

III. WARD INSTRUCTION.—Four times weekly to sections of the fourth-year class in the wards of the Philadelphia General Hospital and in the Skin Dispensary of the University Hospital, the students thus coming in contact with cases.

OPHTHALMOLOGY.

GEORGE E. DE SCHWEINITZ, M.D.....	<i>Professor of Ophthalmology.</i>
JOHN T. CARPENTER, M.D.....	<i>Lecturer in Ophthalmology.</i>
EDWARD A. SHUMWAY, M.D.....	
THOMAS B. HOLLOWAY, M.D.....	
H. MAXWELL LANGDON, M.D.....	
CARL WILLIAMS, M.D.....	

Instructors in Ophthalmology.

I. PRACTICAL WORK IN THE PHYSIOLOGICAL LABORATORY. The second-year men are each provided with suitable appliances, an optical box, an ophthalmoscope, an artificial eye, color tests, etc., and are instructed in physiological optics and in the physiology of the eye. This course, which consists of a series of laboratory hours, is conducted by the Professor of Physiology and his assistants.

II. LECTURE DEMONSTRATIONS AND CLINICAL LECTURES. *Professor de Schweinitz.*—These are given twice a week, from the first of October until the first of February, to members of the third-year class. The subjects covered in this course comprise the methods of examining the patient and the external examination of the eye; functional testing; diseases and injuries of the eye; the eye in its relation to general diseases; medical ophthalmoscopy and medical ophthalmology; and operative ophthalmology. The clinical lectures in this course continue throughout the academic year and including these thirty-five hours are devoted to the entire course.

III. PRACTICAL WORK. *Drs. Carpenter, Shumway, Holloway, Williams and Langdon.*—Daily clinics are given in the Dispensary and in the wards of the Philadelphia Hospital. The students of the third-year class are divided into sections of about thirty men, and each of these sections subdivided into smaller sections of ten. Each subsection has the opportunity in turn of closely inspecting the patients with external inflammatory diseases of the eye, of seeing the method of applying the remedies, of making the commoner applications utilized

in the treatment, of learning the use of the ophthalmoscope so that each student may recognize the healthy fundus and its important diseased conditions; and of ascertaining the results secured by functional testing, such as the pupillary reflexes, the visual acuteness, the field of vision, the balance of the external ocular muscles, and the refractive errors. The number of hours devoted to this course is thirty-five, each student receiving sixteen hours of practical instruction. During the last month of the course a series of quizzes is given and the work of the entire course is reviewed.

IV. The students of the fourth year have the opportunity of electing a continuation of the instruction in Ophthalmology by attendance on the clinical lectures, which continue throughout the academic year, and by work in the Eye Dispensary one hour weekly.

OBSTETRICS.

BARTON COOKE HIRST, M.D.	<i>Professor of Obstetrics.</i>
RICHARD C. NORRIS, M.D.	<i>Assistant Professor of Obstetrics.</i>
JOHN H. GIRVIN, M.D.	
WILLIAM R. NICHOLSON, M.D.	
JOHN C. HIRST, M.D.	
J. H. ALLEN, M.D.	
L. F. LUBURG, M.D.	
E. P. BARNARD, M.D.	
N. L. KNYPE, M.D.	
C. D. DANIELS, M.D.	

Associates in Obstetrics.

Assistant Instructors in Obstetrics.

A graduated course of instruction in Obstetrics is given to the members of the third and fourth-year classes in the Maternity Pavilion of the University Hospital, in the New Medical Laboratories and in the Out-Patient Department of the Hospital, conducted under the direct control of the Professor of Obstetrics.

I. CLINICS. *Professor Hirst.*—Two clinical lectures a week are given to the third-year class, the large clinical material of the Maternity Department being used to illustrate a systematic course of lectures on the complications of gestation, labor and the puerperium.

II. DEMONSTRATIONS. Demonstrations of palpation, pelvimetry and the signs of pregnancy are given to sections of four students; routine examinations of urine; attendance on labor cases; demonstrations of the injuries of parturition and their repair.

III. CLINICAL AND OPERATIVE OBSTETRICS. *Professor Hirst.*—One clinic a week to a third of the fourth-year class, devoted to the

surgical treatment of all the complications and pathological consequences of the childbearing act at all periods, is given in the maternity amphitheatre. One clinical conference a week devoted mainly to diagnosis.

IV. WARD WORK. Every morning from 11 to 12 a small section of the class assists in the repair of injuries of the genital canal, in the closure of abdominal wounds, in the local treatment of genital infections, the final examination of the puerpera, etc. A special course in cystoscopy is given.

V. OBSTETRICAL OPERATIONS. *Professor Hirst*.—In the Anna Dike Scott Memorial Amphitheatre an exhibition of all obstetrical operations is given to the members of both the third and fourth-year classes.

VI. PRACTICAL EXERCISES WITH MANIKINS AND FETAL BODIES. *Assistant Professor Norris*.—Each student devotes eight hours to the practice upon the manikin of the obstetrical operations.

VII. PRACTICAL EXERCISES IN THE OUT-PATIENT DEPARTMENT. This department is under the direct control of the Professor of Obstetrics. The total indoor and outdoor service amounts to 2,000 cases a year. The complicated cases in this service demanding operative treatment are transported to the University Hospital, and the operations are exhibited to the combined third and fourth-year classes. Each student attends in confinement from six to eight labor cases and serves as assistant in the ambulatory dispensary for a week, where he is trained in gynecological diagnosis.

NEUROLOGY.

CHARLES K. MILLS, M.D. *Professor of Neurology*.

WILLIAM G. SPILLER, M.D. *Professor of Neuropathology and Associate Professor of Neurology*.

JAMES W. McCONNELL, M.D. *Associate in Neurology*.

ALFRED R. ALLEN, M.D. } *Associates in Neurology and in Neuropathology*.
S. D. LUDLUM, M.D. }

N. S. YAWGER, M.D. *Instructor in Neurology*.

WILLIAMS B. CADWALADER, M.D. } *Instructors in Neurology and in Neuropathology*.
SAMUEL LEOPOLD, M.D. }

I. CLINICAL LECTURES. *Professors Mills and Spiller*.—One clinical lecture a week is given to the fourth-year students at the University Hospital throughout the entire year, during the first half of the session by Professor Mills, and during the second half by Professor Spiller.

II. CLINICAL LECTURES (*Continued*).—One lecture a week is also given to the fourth-year class during the first half of the session at the Philadelphia General Hospital. An effort is made to systematize the teaching, especially at the Philadelphia General Hospital, where the large amount of material always at command enables the teacher to select and arrange beforehand the subjects to be discussed.

III. WARD CLASS INSTRUCTION. *Dr. McConnell, Dr. Ludlum and other Instructors.*—This instruction is given during one-half of the year, both in the University and in the Philadelphia General Hospital. The class is divided into small sections, so as to give each student the opportunity of personally investigating the cases under the supervision of the instructors.

IV. WARD WORK. Ward work in neurology, similar to that described under instruction in medicine for the fourth year, is given in the University Hospital by Dr. Leopold, Dr. Yawger and Dr. Cadwalader under the supervision of the professors in neurology. This ward work is in addition to the ward classes above described.

V. INSTRUCTION IN OUT-PATIENT DEPARTMENT. *Dr. McConnell, Dr. Allen, Dr. Leopold and other Instructors.*—In connection with the teaching given in the wards of the University and Philadelphia General Hospitals, advantage is taken of the large outdoor neurological service, sections being instructed in the dispensary at times previously arranged. In this way the students are brought in contact with nervous diseases in their earlier as well as in their later manifestations. The methods of studying, recording and treating cases are taught. Lectures and demonstrations in electrotherapeutics are given by Dr. S. Leopold. The electromedical apparatus used in the outdoor service is of the most modern type, including static, galvanic and faradic instruments. Instruction is given in the use of the methods now employed in the treatment of diseases of the nervous system.

VI. NEUROPATHOLOGY. *Professor Spiller, assisted by Dr. Allen, Dr. Ludlum, Dr. Leopold and Dr. Cadwalader.*—One hour and a half a week to each member of the third-year class, during October and November. The course is open also to post-graduate students. The work is in part clinical. The students are shown various gross pathological specimens and are taught the signs and symptoms caused by the lesions represented by these specimens. In this way they receive much instruction in the physiology as well as the pathology of the nervous system. Where considered desirable, the clinical history of the case illustrated is given. The students are taught the practical application of their knowledge of anatomy and physiology and are prepared for their fourth year clinical work in neurology.

Microscopical sections illustrating many pathological conditions are demonstrated by the lantern to the entire class one hour each week during December and January, so that the students are enabled to study the more minute morbid changes occurring in diseases of the nervous system, and to understand the symptoms produced by them. The technique employed in investigation is also taught so far as possible, so as to include the methods of imbedding, cutting, staining, etc., employed in this branch of medicine. The students are in this way prepared to conduct original investigations in the pathology of the nervous system after their graduation, if they so desire. Instruction is also given in the methods of preparation of the brain and cord for gross examination, so that the nervous tissues may not be injured for microscopical study.

MENTAL DISEASES.

CHARLES W. BURR, M.D. *Professor of Mental Diseases.*

All instruction in Mental Diseases is given in the Philadelphia General Hospital. Throughout the year one hour each week is given the third-year class. The first five lectures are systematic, dealing with the aetiology and general symptomatology of such affections, all the remainder being clinical lectures. In the fourth year the subject is elective; each student who takes the course examines the patients himself, reporting his findings and diagnoses to the professor for criticism. Especially in these latter exercises he obtains an insight into the general workings of asylum management.

LARYNGOLOGY AND RHINOLOGY.

CHARLES P. GRAYSON, M.D. *Professor of Laryngology and Rhinology.*

WALTER S. HARGETT, M.D. *Instructor in Laryngology.*

D. N. HUSIK, M.D. } *Assistant Instructors in Laryngology.*
E. C. BENDER, M.D.

I. LECTURES AND CLINICS. *Professor Grayson.*—From January to May there is a course of weekly lectures given to the third-year class, covering the anatomy and physiology of the upper air and digestive tracts, these being illustrated by drawings and by dry and wet preparations. The diseases of the nose and its accessory cavities, of the pharynx, the fauces and the larynx, are systematically studied; and in connection with their causation and treatment, emphasis is laid upon the pathologic and therapeutic importance of the systemic

conditions with which they are often associated. The surgery of these special regions is also thoroughly demonstrated during the course by a series of clinics.

II. PRACTICAL WORK IN OUT-PATIENT DEPARTMENT. *Professor Grayson and assistants.*—Throughout equal periods of the session the fourth-year class attends this course, divided into sections of such size that each student receives an abundance of practical work under the personal supervision of Dr. Grayson and his assistants. The very large service of this dispensary provides ample material for the members of the class to acquire proficiency in the use of the various instruments of examination and treatment, and to become expert in the diagnosis and treatment of the diseases that are more often encountered in general practice.

OTOTOLOGY.

B. ALEXANDER RANDALL, M.D.....	<i>Professor of Otology.</i>
RALPH BUTLER, M.D.....	
BENJAMIN D. PARISH, M.D.....	<i>Instructors in Otology.</i>
JAMES A. BABBITT, M.D.....	
ISAAC H. JONES, M.D.....	
LEWIS FISHER, M.D.....	<i>Assistant Instructors in Otology.</i>

I. LECTURES. *Professor Randall.*—The instruction in the second half of the third year consists of a course of lectures, partly clinical, but with abundant illustrations by anatomical and pathological preparations, models, charts and the stereopticon. Operations for diseases of the mastoid and lateral sinus and abscess of the brain are demonstrated on the cadaver, if not upon patients.

II. PRACTICAL WORK. *Professor Randall and Dr. Butler.*—Practical work is given to the fourth-year class in subsections of ten or less, in the newly equipped Out-Patient Department or wards of the University Hospital. Individual instruction is given by the dispensary staff in the examination, recording and treatment of patients, the work being delegated to the students so far as they may show themselves competent. All are thus drilled in the use of the head-mirror, in rhinoscopy and Eustachian catheterization, as well as in simpler measures. In mastoid and other operations selected students assist or operate under strict supervision, and follow the cases in the later dressings. Stress is laid throughout upon simplicity in the essential methods of diagnosis and treatment, with minute and conscientious care in application.

FIRST-YEAR CLASS, 1913-1914.

ORDER OF INSTRUCTION, DAILY, BEFORE FEB. 1.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Cornell. Osteology.	Taylor. Physiological Chemistry.	Taylor. Physiological Chemistry.	Taylor. Physiological Chemistry.	Abbott. Bacteriology.	Taylor. Physiological Chemistry.
10 A. M.	Laboratory of Physiological Chemistry.	Laboratory of Physiological Chemistry.	Laboratory of Histology and Embryology.	Laboratory of Physiological Chemistry.	Laboratory of Physiological Chemistry.	Laboratory of Histology and Embryology.
11 A. M.						
12 M.						
1 P. M.						
2 P. M.	Osteology and Dissection.					
3 P. M.						
4 P. M.	Piersol. Anatomy.	Piersol. Anatomy.	Piersol. Anatomy.	Taylor. Physiological Chemistry.	Taylor. Physiological Chemistry.	
5 P. M.	Taylor. Physiological Chemistry.	Gymnasium.			Gymnasium.	

For the first period of 48 working days the class will work in the period from 1.30 to 4 P. M., in the Osteological Laboratory daily; thereafter in the same hours in the Dissecting Room.

First Period from September 29 to November 22—48 working days.

Second Period from November 24 to January 24—39 working days.

FIRST-YEAR CLASS, 1913-1914.

ORDER OF INSTRUCTION, DAILY, AFTER FEB. 1.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.						
10 A. M.	Bacteriological Laboratory	Bacteriological Laboratory.	Laboratory of Histology and Embryology.	Bacteriological Laboratory.	Bacteriological Laboratory.	Laboratory of Histology and Embryology.
11 A. M.						
12 M.						
1 P. M.						
2 P. M.	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	
3 P. M.						
4 P. M.	Piersol. Anatomy.	Piersol. Anatomy.	Piersol. Anatomy.	Eliason. Emergency Treatment.	Stevens. Medical Terminology.	
5 P. M.		Gymnasium.			Gymnasium.	

SECOND-YEAR CLASS, 1913-1914.

ORDER OF INSTRUCTION, DAILY, BEFORE FEB. 1.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.				Richards. Pharmacology.		Pharmacological Conference, Section A.
10 A. M.	Pathological Laboratory.	Pathological Laboratory.	Physiological Laboratory.		Pathological Laboratory.	
11 A. M.				Physiological Laboratory.		Physiological Laboratory.
12 M.	Richards. Pharmacology.	Smith. Pathology.	Smith. Pathology.		Smith Pathology.	
1 P. M.						
2 P. M.	First Period. Dissection.	First Period. Dissection.	First Period. Dissection.	First Period. Dissection.		First Period. Dissection.
3 P. M.	Second Period. Pharmacological Laboratory. Section A.	Second Period. Pharmacological Laboratory. Section B.	Second Period. Pharmacological Laboratory. Section A.	Second Period. Pharmacological Laboratory. Section B.		
4 P. M.	Reichert. Physiology.	Reichert. Physiology.	Pharmacological Conference. Section B.	Reichert. Physiology.	Reichert. Physiology.	
5 P. M.	McKenzie. Physical Education.		McKenzie. Physical Education.			

The class is divided into two sections, A and B, for work in the Laboratory of Pharmacology and for Pharmacological Conferences; elsewhere the entire class is accommodated at each period scheduled.

First Period from September 29 to November 22—48 working days.

Second Period from November 24 to January 24—39 working days.

SECOND-YEAR CLASS, 1913-1914.

ORDER OF INSTRUCTION, DAILY, AFTER FEB. 1.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.	Pathological Laboratory.			Richards. Pharmacology.		
10 A. M.		Pathological Laboratory.	Physiological Laboratory.		Pathological Laboratory.	
11 A. M.	Physical Diagnosis. Section A. — Pharmacological Conference. Section B.			Physiological Laboratory.	Physical Diagnosis. Section B. — Pharmacological Conference. Section A.	Physiological Laboratory.
12 M.						
1 P. M.						
2 P. M.	Pharmacological Laboratory. Section A. — Bandaging. Section B.	Toxicology, Laboratory.	Pharmacological Laboratory. Section B. — Bandaging. Section A.	Thomas. Applied Anatomy.	Thomas. Applied Anatomy.	
3 P. M.				Marshall. Toxicology.	Smith. Pathology.	
4 P. M.	Reichert. Physiology.	Reichert. Physiology.	Norris. Physical Diagnosis.	Reichert. Physiology.	Reichert. Physiology.	
5 P. M.	McKenzie. Physical Therapy.		McKenzie. Physical Therapy.			

ORDER OF INSTRUCTION

75

HOUR.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9 A. M.	JOPSON. Surgical Operative Technique (before Feb. 1). NEILSON. Genito-Urinary Surgery (after Feb. 1).	BURR. Mental Diseases.	HARTZELL. Dermatology (before Feb. 1). G. W. NORRIS. Clinical Medicine (after Feb. 1).	MÜLLER. Neuropathology (before Dec. 1). Practical Therapeutics (after Dec. 1).	MÜLLER. Gross Morbid Anatomy. Demonstrations in Neuropathology (before Dec. 1). Practical Therapeutics (after Dec. 1).	Ross and ELLISON. Clinical Surgery.
10 A. M.	PEPPER. Clinical Pathology.	SMITH. Pathology.	MÜLLER. Clinical Surgery (before Feb. 1). STAHL. Dietetics of Sick (after Feb. 1).	A. C. WOOD. Minor Surgery.	SMITH. Pathology.	Philadelphia and Pennsylvania Hospitals.
11 A. M.	Demonstrations in Neuropathology (before Dec. 1). Practical Therapeutics (before Dec. 1).	Demonstrations in Gross Morbid Anatomy. Demonstrations in Neuropathology (before Dec. 1). Practical Therapeutics (after Dec. 1).	MÜLLER. (Before Feb. 1.) HARTZELL. Dermatological Clinic (after Feb. 1).	CARNETT. Surgery.	MARTIN. Surgery.	STEVENS. Medical Observation (before Feb. 1). W. PEPPER. Clinical Medicine (after Feb. 1).
12 M.	MARTIN. Surgery.		SPILLER. Surgery.		FUSSELL. Applied Therapeutics.	
1 P. M.						
2 P. M.	Medical Dispensary, Section A.	Medical Dispensary, Section A.	FUSSELL. Applied Therapeutics.	Medical Dispensary, Section A.	Medical Dispensary, Section B.	DE SCHWEINTZ. Medical Dispensary.
3 P. M.	Clinical Pathological Laboratory, Section B.			Ward Class, Ophthalmology (before Feb. 1). GRAYSON. Laryngology (after Feb. 1).	Ward Class, Ophthalmology (before Feb. 1). GRAYSON. Laryngology (after Feb. 1).	DE SCHWEINTZ. Ophthalmology (before Feb. 1). RANDAU. Otology (after Feb. 1).
4 P. M.	STENGEL. Medicine.			CLARK. Lantern Dem. in Gynecology.	HIRST. Obstetrics.	STENGEL. Medicine.

SESSION 1913-1914.

Schedule of Practical Instruction for Third-Year Class.

For practical instruction in Neuro-pathology, Practical Therapeutics and Gross Morbid Anatomy the class is divided into two sections, numbered 1 and 2; for practical work in all other subjects the class is divided into two sections (A and B) each of which is subdivided into subsections for ward classes in Medicine.

	Mon.	Tues.	Wed.	Thurs.
Neuro-pathology.....	—	—	1	2
Gross Morbid Anatomy.....	—	—	2	1
Practical Therapeutics.....	—	—	1	2
Medical Ward Class.....	A	B	—	B
Ophthalmological Ward Class	—	A	—	B

YEAR CLA

Surgery and

ons and each studen
pal Hospital, are ex

SESSION OF 1913-1914. FOURTH YEAR CLASS.

Sectional Ward Classes in Surgery, Genito-Urinary Surgery and Specialties.

For practical instruction in all subjects the class is divided into three sections, each of which is divided into subsections and each student is given a number, as 1, 2, etc. Students assigned to instruction in Operative Surgery, to attendance at the Southeastern Dispensary or at the Municipal Hospital, are excused from other work scheduled for the same hours.

Hour.	Subject.	MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			
		Oct. 6 to Dec. 20.	Jan. 5 to Mar. 7.	Mar. 9 to May 16.	Oct. 6 to Dec. 20.	Jan. 5 to Mar. 7.	Mar. 9 to May 16.	Oct. 6 to Dec. 20.	Jan. 5 to Mar. 7.	Mar. 9 to May 16.	Oct. 6 to Dec. 20.	Jan. 5 to Mar. 7.	Mar. 9 to May 16.	Oct. 6 to Dec. 20.	Jan. 5 to Mar. 7.	Mar. 9 to May 16.	
11-1 WED	Operative Obstetrics							26-51	52-77	1-25							
11-1 FRI	Dr. Deaver, Surg. Clinic, U. of Pa. Hospital																
2-6 THURS.	Dr. Deaver, Surg. Clinic (German Hospital)																
11-1 WED, 12-1 TUE, 12-4 FRI	Surgery Genito-Urinary				26-77 1-25	1-25 and 52-77 26-51	52-77 1-25	1-25 26-51	52-77 52-77	1-25	26-51	26-51 1-25	52-77 26-51	1-25 52-77	26-51		
12-4 WED, 12-1 FRI		Oct. 6 to Nov. 22.	Nov. 24 to Jan. 24.	Jan. 26 to Mar. 21.	Mar. 23 to May 16.	Oct. 6 to Nov. 22.	Nov. 24 to Jan. 24.	Jan. 26 to Mar. 21.	Mar. 23 to May 16.	Oct. 6 to Nov. 22.	Jan. 26 to Mar. 21.	Mar. 23 to May 16.	Oct. 6 to Nov. 22.	Nov. 24 to Jan. 24.	Jan. 26 to Mar. 21.	Mar. 23 to May 16.	
3-4	*Neurology Musical Diseases (Elocution) Laryngology Otology	1-25 20-51 32-38	1-25 32-38 39-51	1-25 39-51 40-51	1-25 39-51 40-51	1-25 26-51 32-45	1-25 32-38 40-51	1-25 26-51 32-45									
3-4	Pediatrics	1-25 57-71 72-77	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	1-25 57-71 65-71	
5-6	Obstetrics	52-77	1-25	26-51													

* See Table No. 2.

† See Table No. 3.

‡ See Table No. 1.

SUBSECTIONS OF WARD CLASS IN MEDICINE.—3 P. M.

Oct. 6 to Nov. 22. Nov. 24 to Jan. 24. Jan. 26 to Mar. 21. Mar. 23 to May 16.

Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri.

DR. ALLYN...	52-57	1-6	26-31	58-61	7-12	32-38	65-71	13-18	39-45	72-77	10-25	46-51			
DR. STEVENS...	58-64	7-12	32-38	52-57	1-6	26-31	72-77	19-25	46-51	65-71	13-18	39-45			

SUBSECTIONS OF WARD CLASS IN NEUROLOGY.—3 P. M.

Oct. 6 to Nov. 8. Nov. 10 to Dec. 13. Dec. 15 to Jan. 24.

Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri.

DR. LEOPOLD, UNIVERSITY HOSPITAL...	1-8	20-33	52-59	9-16	34-42	60-68	17-25	13-51	69-77						
DR. McCONNELL, PHILADELPHIA HOSPITAL...	9-16	34-42	60-68	17-25	43-51	69-77	1-8	20-33	52-59						
DR. LUDLUM, PHILADELPHIA HOSPITAL...	17-25	43-51	69-77	1-8	20-33	52-59	9-16	34-42	60-68						

No. 3.

SUBSECTIONS OF WARD CLASS IN PEDIATRICS.—3 P. M.

Oct. 6 to Oct. 25. Oct. 27 to Nov. 8. Nov. 10 to Nov. 22. Nov. 24 to Dec. 13. Dec. 15 to Jan. 10. Jan. 12 to Jan. 24. Jan. 26 to Feb. 7. Feb. 9 to Feb. 28. Mar. 2 to Mar. 21. Mar. 23 to Apr. 9. Apr. 14 to Apr. 25. Apr. 27 to May 16.

Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri. Mon. Wed. Fri.

CHILDREN'S HOSPITAL...	46-51	65-71	10-25	65-71	13-18	39-45	39-45	72-77	13-18	26-31	72-77	1-6	72-77	19-25	19-25	46-51	52-57	46-51	32-38	52-57	7-12	58-61	7-12	32-38
UNIVERSITY HOSPITAL...	65-71	13-18	39-45	30-45	72-77	13-18	46-51	65-71	10-25	52-57	72-77	19-25	46-51	46-51	52-57	1-6	26-31	72-77	10-25	52-57	1-6	26-31	72-77	10-25
PHILADELPHIA HOSPITAL	39-45	72-77	13-18	46-51	65-71	10-25	65-71	13-18	39-45	46-51	52-57	19-25	26-31	72-77	46-51	72-77	10-25	1-6	26-31	58-64	1-6	52-57	7-12	32-38

No. 4. SUBSECTION SCHEDULE FOR WARD WORK IN SPECIALTIES.

First Period, October 6 to December 20.

Subject.	Oct. 6 to Oct. 16.	Oct. 17 to Oct. 28.	Oct. 29 to Nov. 8.	Nov. 10 to Nov. 20.	Nov. 21 to Dec. 6.	Dec. 8 to Dec. 20.
*Obstetrics.....	39-42	47-51	43-46	20-29	34-38	30-33
†Dermatology.....	43-46	39-42	47-51	30-33	26-29	34-38
‡Venereal.....	47-51	43-46	39-42	34-38	30-33	26-29

§Therapeutics..... 39 to 51

26 to 38

Subject.	Jan. 5 to Jan. 14.	Jan. 15 to Jan. 24.	Jan. 26 to Feb. 4.	Feb. 2 to Feb. 14.	Feb. 16 to Feb. 26.	Feb. 27 to Mar. 7.
*Obstetrics.....	65-68	73-77	69-72	52-55	60-61	56-59
†Dermatology.....	69-72	65-68	73-77	56-59	52-55	60-64
‡Venereal.....	73-77	69-72	65-68	60-64	56-59	52-55
§Therapeutics.....	65 to 77				52 to 64	

Third Period, March 9 to May 16.

Subject.	Mar. 9 to Mar. 19.	Mar. 20 to Mar. 31.	Apr. 1 to Apr. 9.	Apr. 14 to Apr. 25.	Apr. 27 to May 6.	May 7 to May 16.
*Obstetrics.....	13-16	21-25	17-20	1-4	9-12	5-8
†Dermatology.....	17-20	13-16	21-25	5-8	1-4	9-12
‡Venereal.....	21-25	17-20	13-16	9-12	5-8	1-4

§Therapeutics..... 13 to 25

1 to 12

*Obstetrics—Maternity clinic, University Hospital, 11-12 A. M.

†Dermatology—Skin and Tissues, 11-12 A. M., Skin Dispensary, University Hospital.

‡Venereal—Mondays, 10 A. M., Dr. Laird, Pepper Laboratory.

Tuesdays and Thursdays, 10 A. M., at Philadelphia Hospital.

Fridays, 10 A. M., Dr. Mackinney, Dispensary No. 7, University Hospital.

§Therapeutics, Wednesdays only, 9-11 A. M., Medical clinic, University Hospital.

WARD WORK.

Oct. 6 to Dec. 20. Jan. 5 to Mar. 7. Mar. 9 to May 16.

Medical Wards University Hospital	Oct. 6 to Nov. 8, 1-12 Nov. 10 to Dec. 20, 13-25	Jan. 5 to Jan. 31, 20-38 Feb. 2 to Mar. 7, 39-51	Mar. 9 to Apr. 9, 52-64 Apr. 14 to May 16, 65-77
Medical Wards Blockley Hospital	Oct. 6 to Nov. 8, 13-25 Nov. 10 to Dec. 20, 1-12	Jan. 5 to Jan. 31, 39-51 Feb. 2 to Mar. 7, 26-38	Mar. 9 to Apr. 9, 65-77 Apr. 14 to May 16, 52-61
Surgical Wards University Hospital	52-77	1-25	26-51
Phipps Institute and Spectacles I	26-51	Oct. 6 to Nov. 8, 26-38 Nov. 10 to Dec. 20, 39-51	Jan. 5 to Jan. 31, 52-64 Feb. 2 to Mar. 7, 65-77

The section scheduled for Phipps Institute will go to the Tuberculosis Wards, Philadelphia Hospital, every Tuesday, 10-12.

Section scheduled for Phipps Institute will meet Dr. H. C. Carpenter for Pediatrics in Ward G, University Hospital, on Wednesdays at 9 o'clock.

ORDER OF INSTRUCTION, DAILY.—FOURTH YEAR CLASS.—1913-1914.

HOUR.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.	SATURDAY.
9 A. M.	CLARK. Operative Gynecology.	CLARK. Operative Gynecology.	CLARK. Operative Gynecology.	Gynecology.	CLARK. Operative Gynecology.	FRAZIER. Clinical Surgery.
10 A. M.	Ward Work. Specialties.	Ward Work. Medicine.	Ward Work. Medicine.	Ward Work, Surgery.	Ward Work, Surgery.	HIRST. Obstetrics.
11 A. M.	Ward Work. Medicine.	Ward Work. Medicine.	Ward Work. Medicine.	Ward Work, Surgery.	Ward Work, Surgery.	HIRST. Obstetrics.
12 M.	MARTIN. Surgery.	MARTIN. Surgery.	HIRST. Operative Obstetrics.	MARTIN. Surgery.	DEAVER. Surgical Clinic.	DEAVER. Surgical Clinic.
1 P. M.	Ward Classes. Surgery.	Ward Classes. Surgery.	Ward Classes. Surgery.	MILLS and SPILLER. Hygiene (before Feb. 1).	MILLS and SPILLER. Neurological Clinic.	MILLS and SPILLER. Neurological Clinic (before Feb. 1).
2 P. M.	DAVIS. Orthopedic Surgery (after Feb. 1).	DAVIS. Orthopedic Surgery (after Feb. 1).	DAVIS. Orthopedic Surgery (after Feb. 1).	DAVIS. Orthopedic Surgery (after Feb. 1).	DAVIS. Orthopedic Surgery (after Feb. 1).	DAVIS. Orthopedic Surgery (after Feb. 1).
3 P. M.	Ward Classes. See Schedule of Practical Instruction.	Ward Classes. See Schedule of Practical Instruction.	Laboratory of Surgical Pathology, Section. Operative Surgery, Laboratory, Section.	Ward Classes. See Schedule of Practical Instruction.	RIESMAN. Clinical Conference.	DEAVER. Surgical Clinic. German Hospital, Berlin, Germany.
4 P. M.	STENGEL. Medicine.	STENGEL. Medicine.	STENGEL. Medicine.	STENGEL. Medicine.	PACKARD. Medical History (before Feb. 1).	STENGEL. Medicine.
5 P. M.	Operative Obstetrics, Laboratory, Section. Research Medicine, Elective, Section.	Operative Obstetrics, Laboratory, Section. Research Medicine, Elective, Section.	Operative Surgery, Laboratory, Section.	Clinical Conference.	Research Medicine, Elective, Section.	

TEXT-BOOKS.

Text-Books.

Anatomy: Piersol's Text-book of Anatomy; Piersol's Normal Histology; Heisler's Practical Anatomy; Villiger's Brain and Spinal Cord.

Collateral Reading.

Cunningham; Gray; Morris; Spalteholz; Sobotta's Histology (edited by Huber); Heisler's Embryology; McMurrich's Embryology.

Bacteriology: Abbott's Principles of Bacteriology; Muir and Ritchie's Manual of Bacteriology; Hiss and Zinsser's Text-book of Bacteriology; Park and Williams Pathogenic Bacteria and Protozoa; Frost and McCampbell's General Bacteriology.

Enzymes and their Application; Effront; Rickett's Infection, Immunity and Serum Therapy; Wright's Studies in Immunization; Herter's Bacterial Infections of the Digestive Tract; Ehrlich-Bolduan's Studies in Immunity; Bordet-Gay's Studies in Immunity; Vernon's Intracellular Enzymes.

Physiological Chemistry: Remsen's Organic Chemistry; Abderhalden's Text-book of Physiological Chemistry, Lusk's The Science of Nutrition, or Taylor's Digestion and Metabolism.

Physiology: Howell's or Starling's Physiology; Krehl's Pathologische Physiologie, or the translation by Hewlett entitled, Krehl's Clinical Pathology; Villiger's Brain and Spinal Cord, translation by Piersol.

American Text-book of Physiology; Shäfer's Text-book of Physiology.

Text-Books.

Pathology: For general use, Stengel's Text-book of Pathology or Adami and McCrea's Pathology; for Aetiology, Roger's Principles of Medical Pathology; for Pathological Anatomy and Histology, Delafield and Prudden; for Pathological Physiology, Krehl's Clinical Pathology and Wells' Chemical Pathology; for Pathological Technology, Mallory and Wright.

Medicine: Tyson and Fussell's Text-book of Medicine; Musser's Medical Diagnosis; Clinical Diagnosis, Todd.

Surgery: Manual of Surgery, Thomson and Miles; Stewart's Manual of Surgery; Da Costa's Modern Surgery; American Text-book of Surgery; Martin's Surgical Diagnosis; Binnie, Manual of Operative Surgery; Brewer's Text-book of Surgery; Willard's Surgery of Childhood including Orthopædic Surgery; White and Martin, Genito-Urinary and Venereal Diseases; Dislocations and Joint Fractures, F. J. Cotton; The Treatment of Fractures, Scudder.

Genito-Urinary Diseases: Chetwood's Practice of Urology; Morton's Genito-Urinary Diseases and Syphilis.

Collateral Reading.

Ziegler's General and Special Pathological Anatomy; Orth's Lehrbuch der Speciellen Pathologischen Anatomie; Coplin; McFarland; Beattie and Dixon; Adami's General and Special Pathologies; Krehl and Marchand, Handbuch der Allgemeinen Pathologie; Brooks' Pathology.

Osler's Text-book of Medicine; Osler's Modern Medicine; Albutt and Rolleston's System of Medicine; Grayson's Diseases of Throat, Nose and Ear.

Text-Books.

Obstetrics: Hirst's Text-book of Obstetrics.

Collateral Reading.

Edgar's *Obstetrics*; Webster's *Obstetrics*; Williams' *Obstetrics*; Dr. Lee's *Obstetrics*.

Pharmacology: Cushny's Text-book of Pharmacology and Therapeutics.

The United States *Pharmacopœia*; Wood's *Therapeutics*; Sollmann's *Pharmacology*; Dixon's *Pharmacology*; Schmiedeberg's *Pharmakologie*; Meyer and Gottlieb's *Die Experimentelle Pharmakologie als Grundlage der Arzneibehandlung*.

Applied Anatomy: Davis' Applied Anatomy; Piersol's Anatomy, Practical Considerations.

Woolsey; Eisendrath; Taylor; Treves; Campbell; Deaver.

Physical Diagnosis: S. J. Gee, Auscultation and Percussion; Flint and Emerson, Manual of Auscultation and Percussion; Sahli and Potter, Diagnostic Methods.

Physical Diagnosis: R. Geigel, Leitfaden der Diagnostischen Akustik; Hirschfelder, Diseases of the Heart and Aorta; Tyson, Physical Diagnosis; Camac, Epoch-making Contributions to Medicine, Surgery and the Allied Sciences; Cabot, Physical Diagnosis.

Nervous Diseases: Oppenheim's Diseases of the Nervous System, translated by Alexander Bruce; Pott's Nervous and Mental Diseases; Pott's Electrotherapeutics.

Mills' Diseases of the Brain and Cranial Nerves, with a General Introduction on the Study and Treatment of Nervous Diseases; Dana's Text-book of Nervous Diseases; Church and Peterson's Nervous and Mental Diseases; Starr's Nervous Diseases, Organic and Functional.

Text-Books.

Gynecology: Penrose's Text-book of Diseases of Women; Winter's Gynecological Diagnosis.

Collateral Reading.

Kelly's Operative Gynecology; Hirst's Text-book of Gynecology; Ashton's Practice of Gynecology; Montgomery's Text-book of Gynecology.

Pediatrics: Holt; Rotch; Koplik; Carr; Ruhräh.

Medical Jurisprudence:

Reese's Medical Jurisprudence; Herold's Legal Medicine. The Law in its Relation to Physicians, by Taylor; Draper's Medical Jurisprudence.

Dermatology: Duhring's Cutaneous Medicine, Parts I and II; Stelwagon's Treatise; MacLeod's Handbook of the Pathology of the Skin.

Ophthalmology: de Schweinitz, Diseases of the Eye.

American Text-book of Diseases of the Eye, Ear, Nose and Throat, by de Schweinitz and Randall; American Edition (edited by de Schweinitz) of Haab's External Diseases of the Eye, Ophthalmoscopy and of Operative Ophthalmology.

Hygiene: Bergey's Principles of Hygiene; Sedgwick's Hygiene and the Public Health; Flügge's *Grundriss der Hygiene*; Notter's Treatise on Hygiene; Abbott's Hygiene of Transmissible Diseases.

Chapin: Municipal Sanitation in the United States; Bashore's Rural Hygiene; Dunbar and Calvert; Principles of Sewage Disposal; Mason's Water Supply; Rubner Grubers and Ficker, *Handbuch der Hygiene*; Rosenau's Disinfection and Disinfectants; Wiley's Foods and their Adulterations.

Text-Books.

Collateral Reading.

Physical Therapy: Wide on Medical and Orthopædic Gymnastics; Graham's Treatise on Massage; McKenzie's Exercise in Education and Medicine.

Medical Dictionary: Gould, Dorland, Cattell or Stedman.

PART IV.

GRADUATE WORK.

GRADUATE WORK.

In addition to the usual accommodations afforded graduates of this and other regular medical schools to attend the laboratory and clinical work of the school, three special provisions for post-graduate work leading to degrees are open to applicants, viz.: a course of instruction in Public Hygiene leading to the degree Dr.P.H. (Doctor of Public Hygiene) for graduates in Medicine and the certificate C.S. (Certified Sanitarian), for those not holding the M.D. degree, and, under the rules of the Graduate School of the University of Pennsylvania, the election of certain branches in the School of Medicine in courses leading to the Ph.D. degree.

In addition, the special courses in Tropical Medicine are intended especially for post-graduates, and a limited number of post-graduate students may be accommodated in the work of the Phipps Institute.

1.—COURSES IN PUBLIC HYGIENE.

ALEXANDER C. ABBOTT, DR.P.H., M.D., Sc.D., Pepper Professor of Hygiene and Bacteriology and Director of the Laboratory of Hygiene.

WILLIAM EASBY, JR., C.E., Professor of Municipal Engineering.
ALLEN J. SMITH, A.M., M.D., Sc.D., LL.D., Professor of Pathology, Comparative Pathology and Director of the Courses in Tropical Medicine.

R. TAIT McKENZIE, A.B., M.D., Professor of Physical Education and Director of the Department of Physical Education.

LOUIS A. KLEIN, V.M.D., Professor of Pharmacology and Veterinary Hygiene and Dean of the Veterinary School.

DAVID H. BERGEY, A.M., M.D., Assistant Professor of Bacteriology.
THOMAS NOLAN, PH.B., M.S., A.M., Professor of Architectural Construction.

PHILIP P. CALVERT, PH.D.. Professor of Zoölogy.

NATHANIEL GILDERSLEEVE, M.D., Associate in Bacteriology.
M. H. JACOBS, PH.D., Instructor in Zoölogy.

WALTER S. CORNELL, B.S., M.D., Instructor in Osteology, University of Pennsylvania, Director of Medical Inspection in the Public Schools of Philadelphia.

Sanitary Engineering.—Including a consideration of water supplies; sewerage and sewage disposal; the disposal of municipal refuse and street cleaning.

Sanitary Engineering of Buildings.—Including the principles and practices involved in their heating and ventilation; the various methods of draining and plumbing.

Inspection of Meat, Milk and Other Animal Products.—Comprehending a discussion of the general question of meat inspection, of the diseases of food-producing animals dangerous to man; of milk, particularly of the proper methods of production, preservation and delivering; and of the approved methods for the preservation of all such products.

Practical Methods Used in Sanitary Work; *i. e.*, the practical application of chemical, physical and biological methods to the study of the air, water, soil, food, raiment; the methods for the disposal of refuse; the characteristics of offensive and dangerous trades.

Practical Bacteriology.—Covering the use of apparatus, the methods of cultivating and isolating bacteria; the study of special types of bacteria, particularly those concerned in the causation of disease; a study of immunity, protective vaccinations and the blood reactions attendant thereto; a study of disinfectants and methods of practical disinfection; the bacteriological analysis of air, water, soil, foods, etc.

Protozoölogy.—This course includes a general introduction to the structure, physiology, life-histories and classification of the protozoa, with especial reference to those forms which cause disease in man and the lower animals. Attention is paid to the technique of protozoan investigation, the special methods of cultivating, fixing, staining and sectioning the protozoa being considered. An attempt is made in the lectures to point out the most promising fields for future investigation, and facilities are offered (in the laboratory) to those desiring them, to pursue original lines of research.

Arthropods and Disease.—Characters and structures of the arthropods and their subdivisions, with special attention to those forms of arachnids and of insects which as parasites or otherwise attack man and mammals and which carry, or may serve as carriers of disease, or which possess poisonous secretions.

Helminthology and General Medical Zoölogy.—In this course are discussed animal parasites in general, particularly their anatomy, life history and modes of dissemination, followed by special consideration of the trematodes, cestodes and nematodes parasitic for man. Where necessary or desirable for purposes of illustration similar parasites occurring in other animals are

introduced. This instruction is by both lectures and laboratory work.

Pathology of Tropical Diseases.—In this course are discussed in general the factors involved in the causation of diseases peculiar to tropical countries, taking up principally those due to protozoa, to bacteria and to the higher vegetable parasites together with those referable to unknown and non-vital causes. This instruction is given both by lectures and laboratory exercises.

Medical Inspection of Schools.—This instruction is given in a course of lectures on the subject of medical inspection of school children, and the segregation and care of the mentally deficient pupil found in the schools.

Personal Hygiene.—Covering the topics of anthropometry, the use of exercise for correction of defects; the value of exercise in the maintenance of physiological equilibrium.

Vital Statistics.—Statistical methods and the results, with special reference to the population of cities.

Sanitary Legislation.—Comprising a study of the Federal, State and Municipal laws and regulations for safeguarding the public health.

General Hygiene.—Designed to co-ordinate the foregoing topics and to indicate the relation of each and all to the general question of preventive medicine.

This course covers one academic year.

At the termination of the course both theoretical and practical examinations will be held and on all Doctors of Medicine demonstrating fitness, a degree, Dr.P.H., designating the holder as "Doctor of Public Hygiene," will be conferred. To those participants in such subjects of the course as are not strictly medical and who do not hold the degree of Doctor of Medicine, a certificate designating the holder as "Certified Sanitarian" will be awarded.

Only persons holding the degree of Doctor of Medicine are eligible to the full course. The fee for the course, including the diploma, is \$150.00. For circular of particulars apply to the

Director of the Laboratory of Hygiene,
University of Pennsylvania.

2.—COURSES IN THE GRADUATE SCHOOL OF THE UNIVERSITY OF PENNSYLVANIA.

Certain branches of instruction in the Medical School have been incorporated in the Graduate School of the University by the Trustees, and may be elected in appropriate groups by eligible individuals for

work for the Master's Degree, or that of Ph.D. The possession of a Baccalaureate Degree is required for admission, and the conditions are subject to the rules of the Graduate School of the University of Pennsylvania. For information address Dean of Graduate School of University of Pennsylvania, Philadelphia.

Majors—Anatomy; Physiology; Physiological Chemistry; Bacteriology; Pathology; Research Medicine; Pharmacology.

Professor PIERSOL.

1. Anatomy. Taken as a major only by individuals with satisfactory preparation in Human Anatomy or General Anatomy, and offered only for research work upon such anatomical subjects as may be assigned by the Professor of Anatomy after consultation with each student. Hours to be assigned in each case.

General Human Anatomy may be taken as a minor by students approved by the Professor of Anatomy. Hours for lecture and dissection exercises to follow the class work scheduled for the students of the School of Medicine.

Special portions of Human Anatomy as may harmonize with other branches of study (as in the anatomy of the nervous system for students of psychology) may be selected as minors. Hours of instruction to follow the schedule for such subjects in the School of Medicine.

Professor REICHERT.

2. Physiology. Taken as a major only by individuals with satisfactory preparation and offered only for research work upon such physiological topics as may be assigned by the Professor of Physiology after consultation with each student. Hours to be assigned in each case.

Taken as a minor only by students with approved preparation, in appropriate arrangement with other selected branches. Hours of lecture and laboratory exercises as scheduled in the School of Medicine.

Professor TAYLOR.

3. Physiological Chemistry. Taken as a major only by students with approved preparation in General Chemistry and elementary Physiological Chemistry, and offered only for research study upon such topics as may be assigned by the

Professor of Physiological Chemistry after consultation with the individual student. Hours to be assigned in each case.

Taken as a minor only by students with approved preparation in General Chemistry, in appropriate arrangement with other selected branches.

Professor ABBOTT.

4. Bacteriology. Taken as a major only by students approved by the Professor of Hygiene and Bacteriology for work in General Bacteriology or for work with the pathogenic organisms. Hours of instruction and laboratory work assigned by the Professor in charge for each individual accepted.

Taken as a minor in connection with other appropriate subjects selected. Hours of instruction and laboratory exercise as scheduled in the School of Medicine.

Professor SMITH.

5. Pathology. General Pathology or special divisions of appropriate dignity may be selected as major subjects only by students with approved preparation; the work in any subject to be conducted with the instruction in the School of Medicine as a basis and advancing into individual research in topics assigned by the Professor of Pathology after consultation with the individual student. Hours of instruction and laboratory work assigned in each case.

As a minor any branch of Pathology may be selected by students with approved preparation, to follow the schedule of lecture and laboratory instruction employed in the School of Medicine.

Courses of lecture and laboratory instruction at present in operation include, along with the usual subjects, protozoan infections and metazoan parasitology, immunology and serum diagnosis.

Professor C. W. BURR.

6. Mental Diseases. This course may be taken as a minor by approved students, the work following the scheduled class-work in the School of Medicine. Additional opportunities for diagnosis and observation in the wards of the Insane Department of the Philadelphia Hospital may be granted to special individuals.

Professor W. G. SPILLER.

7. **Neuropathology.** Taken as a minor only by students with approved preparation in Pathology and who have had some instruction in the anatomy of the nervous system. This course is the same as that offered in the School of Medicine, although individuals who are sufficiently advanced may arrange for additional work.

Professor R. M. PEARCE.

8. **Research Medicine.** This subject is open either as a major or minor to students with approved preparation, for research work in those problems of scientific medicine to which can be applied laboratory methods.

Professor A. N. RICHARDS.

9. **Pharmacology.** Work may be elected as either major or minor in this branch, subject in matter of instruction and hours to the requirements of the student with approval of the professor in charge.

3.—COURSES IN TROPICAL MEDICINE.

Professor A. C. ABBOTT, *Bacteriology, Medical Climatology and Geography, Hygiene of the Tropics and of Ships.*

Dr. M. H. JACOBS.....*Protozoölogy.*

Dr. P. P. CALVERT.....*Entomology.*

Professor ALLEN J. SMITH.....*Helminthology and General Medical Zoölogy, and Pathology; Director of the Courses.*

Dr. WILLIAM PEPPER.....*Tropical Medicine.*

Professor G. E. DE SCHWEINITZ.....*Ophthalmology.*

Professor M. B. HARTZELL.....*Dermatology.*

Dr. G. P. MÜLLER.....*Surgical Applications.*

Dr. DAMASO RIVAS.....*Assistant Director of the Courses.*

The University of Pennsylvania in organizing courses of instruction in Tropical Medicine has had in mind not only the need for special opportunity in these lines for practitioners of medicine in the semi-tropical surroundings of our Southern States and outlying territories, but in view of the rapid extension of American commerce into tropical regions realizes the existing and increasing need for medical men with

suitable preparation in the extending spheres of American influence in tropical America and the far East. The comparatively large number of students from Central and South America also has appealed to the authorities as a reason for an attempt to more fully deal with the conditions which such a class of students is certain to meet in their homes when engaged in practice.

For these reasons a course of instruction, which it is hoped will eventually develop into the fullest realization of the desires of the University authorities, has been organized. The fundamental features are particularly dwelt upon as the really essential parts of such a special course of instruction. Philadelphia is not so situated geographically and not possessed of such commercial relations that there may be predicted at all times such number and type of clinical subjects as must be desirable for the full illustration of the various affections to be dealt with; yet there are available, now in one, now in another hospital of the city, which has permitted the University to make use of the material for teaching purposes, a very fair number of cases of the more common and important affections dealt with, exclusive of those which by law are not permitted entrance to the city from the ship-quarantine guarding the port. In all other divisions of the course than the exhibition of clinical cases it is hoped that ultimate development will leave little to be seriously criticised and much in all of the different lines of instruction which will be found commendable.

It has been determined to offer a course of study extending over a period of fifteen weeks and embracing not less than ten units of work,* at the completion of which period a certificate of attendance is granted, signed by the Provost and Vice-Provost of the University and by the Dean of the Medical School and the Director of the Courses in Tropical Medicine, to all those matriculates who have been in full attendance and who satisfactorily pass examinations in the various branches scheduled for the Courses in Tropical Medicine. To such persons as may have elected individual branches in the course and who satisfy similar requirements for the branch or branches attended, a certificate will be granted for the subject or subjects completed, signed by the Director of the Courses in Tropical Medicine and by the Instructor in the subject in question.

These courses are open to any reputable graduate in Medicine and to students of Medicine who may elect them. The requisite ten units for the certificate may be divided by medical students through-

* A unit is constituted by at least two hours of lecture or recitation work each week for the period of fifteen weeks; or by not less than four hours each week of laboratory work, ward work or clinical lectures.

out their period of Medical study, the order of selection to be prescribed by the Dean of the School of Medicine and the Director of the Courses in Tropical Medicine in consultation with the student.

The fee for the full course is \$150.00.

Graduates of this school or students in course are admitted at half rate. Fee for individual branches will be given upon application; but will be based upon the rule of not less than \$15.00 for each unit.

Subject.	No. of Units Allotted.	No. Hrs. Systematic Lectures.	No. Hrs. Clin. Lect. or Lab. Wk.	Lecturer.
Med. Climatology and Geography	0.5	15	—	Abbott
Hygiene of Tropics and of Ships				
Tropical Medicine	2.0	30	60	Pepper
Skin Diseases of Tropics	0.5	8	15	Hartzell
Eye Diseases of Tropics	0.5	7	15	deSchweinitz
Protozoölogy	1.0	15	30	Jacobs
Arthropods and Disease	1.0	15	30	Calvert
Helminthology and Gen. Med. Zoölogy	1.0	15	30	Smith and Rivas
Pathology of Tropical Diseases	2.0	30	60	Smith and Rivas
Bacteriology of Tropical Diseases	1.0	—	60	Abbott
Surgery of Tropical Diseases	0.5	7	15	Müller.

For further information address, Director of Courses in Tropical Medicine, School of Medicine, University of Pennsylvania.

4.—THE DEPARTMENT OF RESEARCH MEDICINE.

RICHARD M. PEARCE, M.D.	<i>Professor of Research Medicine.</i>
J. HAROLD AUSTIN, M.D.	<i>Associate in Research Medicine.</i>
O. H. PERRY PEPPER, M.D.	<i>Associate in Research Medicine.</i>
EDWARD B. KRUMBHAAR, M.D.	<i>ROBERT ROBINSON PORTER Fellow in Research Medicine.</i>
.....	<i>ROBERT M. GIRVIN Fellow in Research Medicine.</i>

This department, established in 1910 by specific endowment, has for its object the investigation of problems in clinical medicine by means of the fundamental medical sciences. It is equipped in such a way that the methods of chemistry, physiology, pathology, bacteriology and pharmacology may be applied to any clinical problem, with special provisions for distinctly experimental investigation, as well as for observation on patients in the wards of the University Hospital. Opportunity for investigation will be given to instructors in the clinical departments of the Medical School and to properly prepared practitioners and students. Although essentially a research department, the department will give a limited amount of elective undergraduate instruction in special subjects.

5.—HENRY PHIPPS INSTITUTE.

The Henry Phipps Institute for the Study, Prevention and Treatment of Tuberculosis is intended for the threefold object of research in tuberculosis, of instruction, and as a benefaction to the needy afflicted by tuberculosis. Its research and other activities are in charge of a special directorate (v. p. 101); and under appropriate regulations graduate work in its special lines of operation is afforded properly prepared students of this disease. Its possibilities have been decidedly augmented since the completion of the new building in May, 1913. Laboratory facilities, clinical opportunities and study and practice in sociology among the tuberculous are offered. Information may be had by addressing either the Dean of the School of Medicine or the Executive Director of Phipps Institute.

6.—WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE.

Under appropriate regulations and under approval of the Director of the Laboratory, the facilities of this department (v. p. 99) are extended to graduate students.

7.—FELLOWSHIPS.

THE THOMAS A. SCOTT FELLOWSHIP IN HYGIENE was established in 1892 for the purpose of offering talented students who desire to become investigators or teachers in the field of sanitary science. The holder of the Fellowship receives a remuneration of \$1000 per annum. The appointment is made by the Director of the Laboratory of Hygiene subject to the approval of the Provost and the Board of Trustees.

THE GEORGE B. WOOD FELLOWSHIP IN HYGIENE was established in 1912. It is designed to train teachers of Public Hygiene. The holder is expected to devote a year to assisting in class room instruction, in giving demonstrations illustrating special lines of investigation that he may be carrying on during the year. The holder of the Fellowship receives the remuneration of \$700 per annum. The appointment is made under the same conditions as those applying to the Thomas A. Scott Fellowship.

General regulations regarding the above two Fellowships will be found on page 490 of the general catalogue.

FELLOWSHIPS IN RESEARCH MEDICINE.

THE ROBERT ROBINSON PORTER FELLOWSHIP IN RESEARCH MEDICINE was established in 1912 for the purpose of offering an opportunity to individuals who desire to devote a year or more to investigation in the Medical Sciences. The holder of the Fellowship receives a remuneration of \$600 per annum. The appointment dates from July 1st of each year and the award is made by the Professor of Research Medicine subject to approval by the Board of Trustees.

THE ROBERT M. GIRVIN FELLOWSHIP IN RESEARCH MEDICINE was established in 1913. Its purpose is similar to that of the Porter Fellowship and appointment is made in the same way. The compensation is about \$650.

THE HENRIETTA HECKSHER FELLOWSHIP IN MEDICAL RESEARCH was established in 1913 for the purpose of offering an opportunity to individuals who desire to devote at least one half of their time to medical research under the direction or supervision of the Professor of Medicine for a period of at least one year. The holder of the Fellowship receives a remuneration of about \$500 per annum. The award is made by the Professor of Medicine subject to approval by the Board of Trustees.

The term research shall be strictly construed and shall not include teaching or other work not tending to enlarge the boundaries of medical knowledge.

PART V.

EQUIPMENT AND FACILITIES.

BUILDINGS AND EQUIPMENT.

LABORATORIES OF PATHOLOGY, PHYSIOLOGY AND PHARMACOLOGY.

The LABORATORIES OF PATHOLOGY, PHYSIOLOGY and PHARMACOLOGY were formally opened June, 1904. This building is unsurpassed in facilities and equipment for graduate and undergraduate work. The building is two stories in height, above a high basement, and measures 340 feet front by nearly 200 feet in depth. The long front faces north, securing a maximum amount of light for laboratory purposes. All along the front are arranged small rooms for research, rooms for professors and their assistants, libraries, etc., these opening into a private corridor so that those employed in these rooms may be free from interruption by persons passing through the main halls. Perfect lighting of all the laboratories has been obtained through the front or through large courts, which separate the two main parallel groups of rooms.

In the basement of the building the entire north front is occupied by the research laboratories of the department of physiological chemistry; the west wing to the museum of applied anatomy, the laboratories of operative surgery, bandaging and operative obstetrics. In the southern portion are various rooms for prosection and anatomical and pathological preparation; and the large laboratory of pharmacy.

The first floor of the building is devoted to physiology and pharmacology and to the laboratories of research medicine. The portion assigned to the first consists of laboratories for practical instruction, for general research work, for subsection teaching, rooms for the professor and assistants, etc. The section for pharmacology consists of a large general laboratory for teaching practical pharmacology, rooms for original research, etc. An equivalent portion of the southern part of this floor is given over to the laboratories of research medicine. The second floor is devoted mainly to pathology, the entire north front being given over to laboratories for advanced students in pathology, professors' rooms, administrative offices and to the special research and assistants' rooms. The wings accommodate the laboratory of experimental pathology, the museum, the demonstration-rooms and the laboratory of comparative pathology and tropical medicine. The front of the laboratory of normal and pathological histology consists almost entirely of glass and looks north into a spacious court. Another section of this floor, also looking into the court, is subdivided into smaller laboratories for instruction in neuropathology and surgical pathology, and in osteology.

Besides numerous laboratories, research-rooms, etc., there are four lecture-rooms in the building, two of these being demonstration rooms with a seating capacity of 185; the others being lecture-rooms with a seating capacity of 400. The building is entirely fireproof, of the most modern construction, supplied with power, electric light, and many kinds of accessories for promoting the teaching and research work.

LABORATORIES OF CHEMISTRY AND ANATOMY.

The CHEMICAL LABORATORIES occupy the first, second and third floors of the Robert Hare Laboratory building; on the second floor is the laboratory of general chemistry, and on the third floor that of physiological chemistry. In addition to the main rooms, there are smaller rooms, provided with an adequate number of balances for quantitative work, and special rooms set apart for research.

The ANATOMICAL LABORATORY is at the top of the building and is 140 feet in length by 40 feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. There are numerous washstands, with hot and cold water, and private closets for the use of each student. Cleanliness is rigidly enforced. The cadavers furnished the dissecting-room are preserved by refrigeration. Dissection is legalized in Pennsylvania.

LABORATORY OF HYGIENE.

ALEXANDER C. ABBOTT, M.D., *Director.*

The LABORATORY OF HYGIENE was formally opened on February 22, 1892. The building was the gift of the late HENRY CHARLES LEA, of Philadelphia, and the equipment was provided through the munificence of the late HENRY C. GIBSON, of Philadelphia. The building is devoted to graduate and undergraduate work in bacteriology, hygiene and preventive medicine. The student laboratory is a commodious, well-lighted and heated room, with a seating capacity for eighty-three students. Each student is supplied with an individual microscope, and with such apparatus as is necessary to conduct elementary studies in Bacteriology.

CLINICAL LABORATORY.

Several years ago an extension was made to the University Hospital to accommodate the medical dispensaries, medical amphitheatre and clinical conference room, and on the top floor two large laboratories for the teaching of clinical pathology and for the routine laboratory investigation of the hospital cases. The larger room is equipped with

desks for the use of the fourth-year students, giving accommodations for 150 men. Each student of the fourth-year class is assigned a desk and is supplied with an outfit including all the ordinary apparatus required in the examination of blood, urine, stomach contents and other secretions or excretions. He is required to supply himself with a microscope so that he will be enabled to conduct all clinical examinations on cases assigned to him in the hospital wards or elsewhere.

Adjoining the fourth-year laboratory is a smaller room equipped in a similar manner and capable of accommodating fifty students each with a working desk. Members of the third-year class are here instructed in clinical laboratory methods. The class is divided into two sections, each of which is assigned one day per week throughout the year. The course covers completely the important laboratory methods of investigation of blood, urine, stomach contents, pathological exudates, secretions, excretions, etc.

A third room accommodates the Staff Laboratory, where the Pathological Resident of the hospital, under the direction of an Instructor, carries on all the preliminary examinations of materials sent from the wards, makes all blood examinations, Widal tests, etc. Subsequent examinations are often made by students of the fourth-year class to whom the cases in the wards are assigned under suitable direction.

WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.

MILTON J. GREENMAN, M.D., Sc.D., *Director.*

HENRY H. DONALDSON, PH.D., Sc.D., *Professor of Neurology.*

HELEN D. KING, PH.D., *Assistant Professor of Embryology.*

SHINKISHI HATIA, PH.D., *Instructor in Neurology.*

J. MACPHERSON STOTSENBURG, M.D., *Instructor in Anatomy.*

EDWARD B. MEIGS, M.D., *Fellow in Physiology.*

CHESTER H. HEUSER, PH.D., *Fellow in Anatomy.*

The WISTAR INSTITUTE, incorporated in 1892 by the University of Pennsylvania and General Isaac J. Wistar, is the first American University Institute devoted to advanced study and research in anatomy and biology.

Through the munificence of the late General Isaac J. Wistar the Institute was established and endowed not only for the advancement of research in anatomy, but also for the preservation and increase of the anatomical museum originally known as the Wistar or Wistar and Horner Museum. The original museum founded in 1808 by Professor Casper Wistar was used as a teaching museum for students of medicine in the University of Pennsylvania. Its development along

broader lines, since the organization of the Institute, has greatly increased its scientific value both to the medical students of the University and to biological students throughout the country. It has now become the depository for research materials which are open, under suitable regulations, to the use of capable investigators from all Institutions, and through its Advisory Board it has established itself as a central anatomical institute.

The Museum is open to the public as well as to students daily, except Sundays and Holidays, from 9 A. M. to 4 P. M., Saturdays from 9 A. M. to 12 M.

Well equipped laboratories and a biological library adjoin the museum and every facility is provided here for the work of investigators. The chief resources of the Institute are, at the present time, directed to researches in Comparative Neurology, Comparative Embryology and Biometry. No undergraduate teaching is done in the Institute, but arrangements can be made with the Director whereby advanced students or graduates in medicine may be afforded the facilities for research offered by the Wistar Institute.

The Institute publishes the five principal, independent anatomical journals of the United States, namely: *Journal of Morphology*, *The Journal of Comparative Neurology*, *The American Journal of Anatomy*, *The Anatomical Record*, and *The Journal of Experimental Zoölogy*. In these journals appears a large portion of the anatomical research work done in this country. In addition the Institute also publishes a series known as *Memoirs of the Wistar Institute*, in which appear such monographs as are too extensive to be published in the journals.

WILLIAM PEPPER CLINICAL LABORATORY.

HERBERT FOX, M.D., *Director.*

Associates.

SAMUEL S. KNEASS, M.D.,	JOHN L. LAIRD, M.D.,
DANIEL J. McCARTHY, M.D.,	P. G. SKILLERN, JR., M.D.,
THOMAS A. COPE, M.D.,	BENJAMIN A. THOMAS, M.D.,
JOSEPH C. BIRDSALL, M.D.	

Volunteer Associates.

JOSEPH SAILER, M.D.,	O. H. PERRY PEPPER, M.D.,
WILLIAM PEPPER, M.D.,	A. H. HOPKINS, M.D.,
G. W. NORRIS, M.D.,	JOHN W. HUNTER, M.D.
WOODWARD Fellow in Physiological Chemistry.	
DR. G. J. SAXON.	

The WILLIAM PEPPER LABORATORY OF CLINICAL MEDICINE, erected through the generosity of the late Dr. William Pepper as a memorial to his father, adjoins the University Hospital. The purposes of the Laboratory are: to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches; and to advance the interests of science by the publication of the results of such work. No instruction in the Laboratory is given to undergraduates.

The Associates and Volunteer Associates of the Laboratory are appointed for the purpose of carrying out certain lines of investigation for which they have special preparation. The Laboratory does not solicit post-graduate teaching, but has received a limited number of post-graduate students from time to time for the purpose of training them to carry on investigations.

The publications of the Laboratory are issued in the form of contributions, which are the collected reprints of articles issued from the Laboratory and published in various medical journals. One or two numbers, containing from fifteen to twenty or more separate articles, appear each year. A limited number of these may be had by interested persons on application.

The Woodward Fellowship in Physiological Chemistry was founded by George Woodward, M.D., to be filled by election by the Board of Managers of the Hospital of the University of Pennsylvania upon nomination by the Director. The incumbent shall give his full time to work in Physiological Chemistry at the Laboratory and publish only from it, under the Laboratory imprint.

THE UNIVERSITY HOSPITAL.

ROBERT E. HASTINGS, <i>Chairman</i>	} <i>Executive Committee of Board of Managers.</i>
GEORGE H. MCFADDEN	
CHARLES W. DULLES, M.D.	
HENRY S. GROVE	
J. WILLIAM WHITE, M.D.	
THOMAS G. ASHTON, M.D.	

Secretary.

The UNIVERSITY HOSPITAL is situated on the University Campus. It is one of the most important agents in the training of the students, an invaluable adjunct to the School of Medicine, and, together with the Out-Patient Department, furnishes ample provision for the teaching of clinical medicine according to the most approved methods. With accommodation for 400 patients, it also affords excellent facilities for

bedside instruction. Members of the faculty are members of the Hospital Staff.

Six positions as resident physicians in the University Hospital are awarded annually to six members of the Graduating Class of the School of Medicine, selected from the twenty-five full time members of the class who have the highest general average at the end of the third year of the course and from a like percentage or fraction of the men admitted to advanced standing ranked on their third-year average.

The MATERNITY PAVILION, with a capacity of 50 beds, comprises a main building, to which the patients are admitted two weeks before delivery, two wings containing delivery rooms, and the ANNA DIKE SCOTT Amphitheatre. This department is under the charge of the Professor of Obstetrics. Under the supervision of the clinical staff, the students assist in cases of labor and make daily visits, during the puerperium, to the mother and child.

THE HENRY PHIPPS INSTITUTE.

UNIVERSITY COMMITTEE ON PHIPPS INSTITUTE.

Provost E. F. SMITH,	Mr. THOMAS ROBINS,
Dr. J. WILLIAM WHITE,	Dr. CHARLES J. HATFIELD,
Mr. ARTHUR L. CHURCH,	Dr. ALFRED STENGEL,
Mr. R. A. F. PENROSE, JR.	Dr. A. C. ABBOTT,
Mr. GEORGE E. GORDON,	Dr. ALLEN J. SMITH.

ADVISORY COUNCIL.

Dr. SAMUEL G. DIXON, *Commissioner of Health of Pennsylvania, ex-officio,*

Dr. JOSEPH S. NEFF, *Director, Department Public Health and Charities, Philadelphia, ex-officio,*

Mr. WILLIAM H. BALDWIN, *Washington,*

Dr. HERMANN M. BIGGS, *New York,*

Dr. LAWRAZON BROWN, *Saranac Lake,*

Dr. HENRY BAIRD FAVILL, *Chicago,*

Dr. SIMON FLEXNER, *New York,*

Dr. SAMUEL McCUNE LINDSAY, *New York,*

Dr. JAMES ALEXANDER MILLER, *New York*

Dr. JOSEPH H. PRATT, *Boston,*

Dr. THEOBALD SMITH, *Boston,*

Dr. WILLIAM H. WELCH, *Baltimore,*

Dr. H. GIDEON WELLS, *Chicago.*

CONSULTING STAFF.

Dr. ALFRED STENGEL, *Consulting Physician*,
 Dr. EDWARD MARTIN, *Consulting Surgeon*,
 Dr. T. B. HOLLOWAY, *Consulting Ophthalmologist*,
 Dr. D. J. McCARTHY, *Consulting Neurologist*,
 Dr. J. B. CARNETT, *Consulting Surgeon*,
 Dr. C. C. NORRIS, *Consulting Gynecologist and Obstetrician*.

STAFF.

Dr. CHARLES J. HATFIELD, *Executive Director*.

Clinical and Sociological Department.

Dr. H. R. M. LANDIS, *Director*.

Instructors.

Dr. FRANK A. CRAIG,	Dr. JOHN M. CRUICE,
	Dr. C. M. MONTGOMERY.

Clinical Assistants.

Dr. ISADORE KAUFMAN,	Dr. MAURICE M. JACOBS,
Dr. J. D. BLACKWOOD,	Dr. F. S. BALDI.

Laryngologists.

Dr. GEORGE FETTEROLF,	Dr. I. W. BROWN.
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Social Workers.

Miss LUCINDA N. STRINGER,	Miss ELIZABETH WHITTEN,
Miss AGNES E. JACOBS,	Miss DOROTHY M. FERREE.

Research Assistant in Sociology.

Miss JANICE S. REED.

Superintendent of Hospital.

Miss ANNA K. SUTTON.

Pathological Department.

Dr. PAUL A. LEWIS, *Director*,
 Dr. GEORGE L. KITE, *Research Assistant in Physiology*,
 Mr. ROBERT B. KRAUSS, *Research Assistant in Chemistry*,
 Mr. ARTHUR MARGOT, *Research Assistant in Bacteriology*.

The Henry Phipps Institute for the study, treatment and prevention of tuberculosis was established in 1903 by Mr. Henry Phipps, of New York, at Third and Pine Streets, Philadelphia. The situation was chosen as being in a section of the city in which tuberculosis was most prevalent, and was made possible by a special law permitting the establishment of the Hospital within the city limits.

In February, 1910, Mr. Phipps transferred the Institute to the University of Pennsylvania, having previously engaged to erect an appropriate permanent building for its accommodation upon grounds gradually acquired with this in view. The new building, located at Seventh and Lombard Streets, was completed in May, 1913. It is a beautiful and commodious edifice and embodies the most modern ideas of hospital, sanatorium and laboratory construction. By this generous gift to the University this becomes the first fully organized and equipped institution of the kind with University connection. An entire reorganization of the plan of work has been made by the University. The work is divided into distinct fields of activity, represented by two corresponding departments, the Laboratory or Research Department, and the Clinical and Sociological Department, each under its special director. An Advisory Council of twelve members has been selected, composed of the most distinguished men of the country in the lines of work carried on by this Institute, who visit the Institution at least once each year.

On account of its connection with the University, the Institute offers facilities for study to the students of the University of Pennsylvania, especially those of the Medical School. Both by visits to the Institution and through the publication of the results of its investigations and research, the Institute has proven valuable both to students and physicians throughout the country interested in this special work.

LIBRARY FACILITIES.

The basis of the Medical Section of the University Library is formed by the Stillé Collection, presented by the late Alfred J. Stillé, to which additions have been made from the William Pepper Medical Foundation established by the late Dr. William Pepper. The section of Dermatology has been much enriched by the addition of the large and valuable library of the late Dr. Louis A. Duhring, who died on May 8, 1913, leaving his library, dermatological specimens, etc., to the University, together with funds for keeping up these collections. In addition to purchases, the Medical Section has grown considerably through gifts presented by a number of medical publishers, more particularly Messrs. W. B. Saunders, Lea & Febiger, the J. B. Lippincott Company and

P. Blakiston's Son & Co. From most of these are received regularly the new publications issued by them. In addition to these, the University subscribes to about one hundred medical periodicals, which represent a choice selection of the leading medical periodicals of this country and Europe. Through special funds the sets of all the more important periodicals and publications of medical societies have been completed.

The PEPPER MEDICAL ALCOVE contains sets of the more important medical periodicals, general reference works covering the various departments of medicine and surgery, text-books, serial publications and all the more important new medical books received at the University.

LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—In addition to the Medical Section of the University Library, students have access to the Library of the College of Physicians, the second largest medical library in the United States.

PART VI.

GENERAL INFORMATION.

GENERAL INFORMATION.

ARRANGEMENT OF SESSION.

The academic year consists of one session, beginning on the last Friday in September, and ending at Commencement on the third Wednesday in June.

TUITION FEES AND EXPENSES.

Under no circumstances are any changes made in the established fees.

It is expected of every student, either before or by the time of entrance to the second-year class, that he will provide for himself, either by purchase, rental or otherwise, a microscope of a grade suitable for general medical work.

First Year.

Matriculation fee.....	\$5 00
For general tuition ticket, admitting to all the lectures, and including all the laboratory work assigned to this year.....	\$200 00
Use of dissecting material (<i>three parts</i>)	\$1.50 a part.
Gymnasium and Houston Club fee.....	\$10 00

Second Year.

For general tuition ticket, admitting to all the lectures, and including all the laboratory work assigned to this year.....	\$200 00
Use of dissecting material (<i>one part</i>)	\$1.50 a part.
Gymnasium and Houston Club fee.....	\$10 00

Third Year.

For general tuition ticket, admitting to all the lectures and practical courses assigned to this year.....	\$200 00
Gymnasium and Houston Club fee.....	\$10 00

Fourth Year.

For general tuition ticket, admitting to all the lectures and the practical courses assigned to this year (no graduation fee).....	\$200 00
Use of material for operations in surgery.....	\$3 00
Gymnasium and Houston Club fee.....	\$10 00

FEES FOR SPECIAL COURSES OF THE GENERAL CURRICULUM.

(Students taking special or partial courses, if not already matriculated, or if not graduates of the School, are required to pay the matriculation fee in addition to the fees named below.)

For any single course of lectures.....	\$20 00
For practical course in the Chemical Laboratory.....	25 00
For the course in Practical Gynecology of the fourth year.....	25 00
For any one of the remaining practical courses.....	15 00

For practical courses in special classes a minimum fee of \$25.00 will be charged, this fee increasing in proportion to the material required and special attention demanded in instruction.

Graduates in Medicine of this University are admitted to the courses free of charge; but they are required to pay for any laboratory material which they may use.

Fees for Courses in Public Hygiene and in Tropical Medicine.

General fee for the course in Public Hygiene, including diploma, \$150 00	
For single branch of this course.....	25 00
Regular deposit, to cover breakage, etc., for entire course, or	
single branch.....	10 00
General fee for course in Tropical Medicine.....	\$150 00
Fee for single branch of this course from.....	\$15 00 upward
Fee for single graduate course in Phipps Institute from ..	\$50 00 upward

RULES IN RELATION TO FEES.

All payments should be made to W. O. Miller, Bursar, Room 102, College Hall.

A matriculation fee of \$5.00 must be paid by all new students in the department, whether previously registered in another department or not.

Every student shall upon entering the University make a deposit of \$10.00 to cover loss, damage, or breakage of University property, library fines, or any charge not paid by the student in some other way. A student whose deposit is by charges against it reduced to \$2.50 or less shall be required to pay a sum sufficient to restore the deposit to its original amount. No deposit or balance remaining on a deposit shall be finally repaid to a student until he shall have been graduated or shall have formally withdrawn from the University.

A student who repeats the studies of the year will be required to pay the full tuition fee.

ALLOWANCES IN CASE OF WITHDRAWAL, ETC.

A student who leaves the University within thirty days after the beginning of either the first or second term, and who shall have paid the full term's tuition fees may receive a return of one-half of the tuition fees paid, but in no case shall the matriculation fee be returned.

EXAMINATIONS.

First Year.—The mid-year examination in Anatomy (including Osteology, Syndesmology, Myology, and such other subjects as may have been covered by the lectures on Anatomy before February 1), and examination in Physiological Chemistry are held about February 1.

Final examinations at end of year: Anatomy and Bacteriology.

Second Year.—Examinations in Anatomy, in Physiology, Pathology and Materia Medica will be held about February 1.

Final examinations at the end of the year in Physiology, Applied Anatomy, Pathology, Pharmacology, Toxicology and Physical Diagnosis.

Third Year.—Examination in Ophthalmology will be held about February 1.

Final examinations at end of year: Medicine, Surgery, Obstetrics, Therapeutics and Pathology.

Fourth Year.—Examination in Hygiene will be held about February 1.

Final examinations at end of year: Medicine, Surgery, Obstetrics, Gynecology and Dermatology. The examinations include questions on Diseases of the Ear, Children's Diseases and Neurology, from lists furnished by the professors of those branches.

GRADUATION.

At the end of the fourth year a student who has passed all the required examinations satisfactorily will receive the degree of Doctor of Medicine under the following provisions:

1. He must be 21 years of age, and of good moral character.
2. He must have passed satisfactory examinations in all of the required branches of the curriculum, must have attended the practical instruction in all departments, and his last year of instruction must have been at this school.
3. He must have attended at least six cases of Obstetrics.
4. He must be present at Commencement, unless excused by the Dean of the Faculty.

SCHOLARSHIPS.

I. UNIVERSITY SCHOLARSHIPS.—A competitive examination of candidates to fill three free scholarships is held annually. (In 1914, on Monday, September 21, at 10 A.M. in the Medical Laboratories.)

Detailed information about these scholarships may be had upon application to the Dean of the School of Medicine. Each candidate will be required:

First. To satisfy the entrance requirements as stated on pages 26-32.

Second. To furnish satisfactory evidence in writing, from three reputable persons, that he is without means to defray the expenses of a medical education.

Third. To write a brief autobiography of about 300 words in length, which will serve as a test of his qualifications in orthography and grammar. This is to be written on Monday, September 21, at 10 A. M.

Fourth. To undergo examinations in the following subjects:*

i. Any two of the four languages:

- (a) Latin (third book of Horace's *Odes*); after the year 1913, second and fourth books of Horace's *Odes*.
- (b) Greek (first four books of the *Iliad*). The examination will include prosody, syntax and Homeric dialect.
- (c) French.—Elementary French, including grammar, prose composition (Joyne's *Minimum French Grammar and Reader*), and reading at sight in books of the grade of the following:

Francisque Sarcey, *Le Siège de Paris*.

Beaumarchais, *Le Barbier de Séville*.

Anatole France, *Le Crime de Sylvestre Bonnard*.

- (d) German.—Elementary German, including Learned's *German Grammar*, Wesselhoeft's or Harris' *Prose Composition*, and reading at sight in books of the grade of the following:

Heine's *Harzreise*.

Eichendorff's *Aus dem Leben eines Taugenichts*.

Wildenbruch's *Das edle Blut*.

* A percentage of not less than 50 must be obtained in each one of the subjects in which a competitor undergoes examination, and an average percentage of at least 70 must be obtained on the whole examination that a competitor may have his name placed upon the eligible list. The appointments will be made from this eligible list.

2. Any two of the three sciences:

- (a) Physics. (As in Gage's Principles of Physics—Goodspeed's Revision, Crew's General Physics, or Duff's Text-book of Physics.)
- (b) Chemistry (General; as in Richter's Inorganic Chemistry or its equivalent. Qualitative Analysis, including bases and acids with separations, as in Medicus Qualitative Analysis).
- (c) Zoölogy or Biology (Zoölogy as in Galloway's Text-book of Zoölogy or Hegner's College Biology. Biology as in Needham's General Biology.)

Fifth. To pay an examination fee of \$5.00, which is not returned, but is accepted as the matriculation fee in case the candidate is successful.

The applications of candidates who propose presenting themselves for examination, together with the certificates demanded by the second requirement of the competition, must be in the hands of the Dean *before September 10*. This requirement having been complied with, candidates will appear without further notice at the time stated for examinations.

II. PHILADELPHIA FREE SCHOLARSHIPS.—Under an agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of graduates of the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade, as vacancies occur from year to year.

Under another agreement with the city of Philadelphia, seventy-five free scholarships exist in the University for the benefit of graduates from local schools in general. Information regarding the latter scholarships should be obtained from the Mayor's Office.

III. In addition, certain non-competitive scholarships are available, reference to which will be found on pages 182-186 of General Catalogue.

PRIZES TO BE AWARDED, JUNE, 1914.

NOTE.—*Theses and Reports in competition for Prizes must be presented to the Dean on or before May 1. Prizes will not be awarded unless the work submitted reaches a high standard of excellence.*

THE ALUMNI MEDAL and a prize of \$50.00 is offered by the Society of the Alumni of the School of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible.)

The DR. SPENCER MORRIS PRIZE.—The annual income, derived from the investment of Ten Thousand Dollars, will be awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine.

The FREDERICK A. PACKARD PRIZE of One Hundred Dollars is offered by a friend of the University to the member of the Graduating Class who has proven himself to be the most proficient in the course in Clinical Medicine.

The Professor of Obstetrics offers a Prize of an obstetrical forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital.

DR. A. O. J. KELLY PRIZE FUND.—Founded March 26, 1912, by contributions from friends of Dr. A. O. J. Kelly, deceased. The Kelly Prize will be given to a member of the Fourth Year Medical Class who has made an especially meritorious report of some clinical observation in his regular University work.

CHARLES A. OLIVER MEMORIAL PRIZE.—Founded June 16, 1913, by Dr. Charles A. Oliver. This prize, in the form of a gold medal, will be given to "those students in the graduating class in the Department of Medicine who shall annually receive the highest average and pass the best examination in ophthalmology."

APPOINTMENTS TO HOSPITAL.

The school strongly advises each graduate to undertake a term of service as interne in some good general hospital. About nine-tenths of the class of 1913 have received appointment by competitive examination or otherwise; and there are each year more demands for graduates of the school for such service than can be accommodated.

The Bureau of Medical Education and Licensure of the State of Pennsylvania now requires that all applicants for licensure shall have completed a year as interne in a hospital of specified character.

SOCIETY OF THE ALUMNI OF THE SCHOOL OF MEDICINE.

President.—John B. Deaver, '78.

Vice-Presidents.—John K. Mitchell, '83; Richard C. Norris, '87; S. McC. Hamill, '88; Lewis H. Taylor, '80; Casper W. Sharples, '88; Walter R. Weiser, '92; Alexander R. Craig, '93.

Historian.—William Pepper, '97.

Secretary and Treasurer.—George M. Piersol, '05.

Executive Committee (for three years).—James Tyson, '63; George E. deSchweinitz, '81; George C. Stout, '91; Allen J. Smith, '86; Charles W. Burr, '86; Lewis H. Adler, Jr., '88; George G. Ross, '91.

Executive Committee (for two years).—Herbert B. Carpenter, '89; J. H. W. Rhein, '90; John G. Clark, '91; Charles K. Mills, '69; G. G. Davis, '79; George A. Piersol, '77; Edward A. Shumway, '94.

Executive Committee (for one year).—Wm. J. Taylor, '82; B. Franklin Stahl, '87; Wm. Campbell Posey, '89; George W. Norris, '99; B. A. Thomas, '03; Fred H. Klaer, '04; Henry P. Brown, Jr., '12.

This Society was founded in 1870, and is composed of graduates of the School of Medicine in good standing.

The Society is actively engaged in collecting detailed information regarding the Medical Alumni, and is now preparing a matriculate catalogue which will contain the historical data thus acquired.

A special arrangement has been made with the General Alumni Society whereby *The Alumni Register* has become the official organ of this Society; and a joint annual subscription of \$3 will include membership in both Societies, and one year's subscription to *The Alumni Register*.

Subscriptions should be sent to the Treasurer of the General Alumni Society, 704 Hale Building.

**THE PHILADELPHIA ALUMNI SOCIETY OF THE MEDICAL
DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.**

President.—Clarence P. Franklin, '93.

Honorary Vice-President.—Provost Edgar F. Smith.

Vice-Presidents.—W. Duffield Robinson, '80; Howard A. Sutton, '98; Charles Claxton, '82.

Recording Secretary.—William S. Wray, '94.

Corresponding Secretary.—B. Franklin Stahl, '87.

Treasurer.—Morris B. Miller, '89.

Executive Committee.—H. B. Carpenter, '89; Daniel M. Hoyt, '01; George C. Stout, '91; George G. Ross, '91; Harvey E. Schock, '02.

This Society was founded in the spring of 1892 among the alumni of the Medical Department of the University living in and near Philadelphia. The meetings are held on the third Saturday evenings of February, May and November, and are of a purely social character. The membership is composed of graduates of the School of Medicine. Those desiring to become members are requested to send their names to the Secretary. The dues are two dollars per annum.

DEGREES AND PRIZES, 1913.

At a public Commencement, held Wednesday, June 18, 1913, at the Metropolitan Opera House, the degree of Doctor of Medicine was conferred by Edgar F. Smith, Ph.D., Sc.D., L.H.D., LL.D., Provost, upon the following candidates:

Name.	Post-Office.	State.
Adams, Erick Archibald.....	Wilkes-Barre.....	Pennsylvania.
Allis, Paul Mitten.....	Wyalusing.....	Pennsylvania.
Armstrong, Thomas Morrell.....	Philadelphia.....	Pennsylvania.
Artman, Edward Louis, Jr.....	Philadelphia.....	Pennsylvania.
Bacharach, Daniel.....	New York.....	New York.
Bailey, Frank Raymond.....	Xenia.....	Ohio.
Ballou, De Forrest, Jr.....	Cynwyd.....	Pennsylvania.
Barnes, Frederick Rigby, Jr.....	Norristown.....	Pennsylvania.
Barrett, Martin Clement.....	Kane.....	Pennsylvania.
Bowman, Foster Hunter.....	Wilkes-Barre.....	Pennsylvania.
Bowman, Paul Newkirk.....	Reading.....	Rennsylvania.
Boyd, Samuel Harold.....	Hensel.....	Pennsylvania.
Bramlett, William Parvin.....	Oxford.....	Mississippi.
Bransfield, John William.....	Portland.....	Connecticut.
Burney, Thomas Morrison.....	Los Angeles.....	California.
Buschmann, Trygve Wedege.....	Seattle.....	Washington.
Carpenter, James Stratton, Jr.....	Pottsville.....	Pennsylvania.
Carskadden, Henry Adam.....	Williamsport.....	Pennsylvania.
Ceres, Frederick.....	Newark.....	New Jersey.
Chandler, Swithin.....	Wilmington.....	Delaware.
Cohen, Herman Bernard.....	Philadelphia.....	Pennsylvania.
Cox, Ora Howard.....	Machins.....	Washington.
Crossan, Edward Thomas.....	Wilmington.....	Delaware.
Dannenberg, Arthur Mansbach.....	Philadelphia.....	Pennsylvania.
Davidson, Douglas Treat.....	Warren.....	Pennsylvania.
Davis, James Wagner.....	Goshen.....	North Carolina.
Day, Elbert Osborne.....	Red Creek.....	New York.
Dean, James Philip.....	Madison.....	Wisconsin.
Denney, Oswald Evans.....	Symrna.....	Delaware.
Dewey, Michael George.....	Ashland.....	Pennsylvania.
Dietrich, Paul Henry.....	Kutztown.....	Pennsylvania.
Dobbins, Royal Bolton.....	Narberth.....	Pennsylvania.
Doig, Rolland Barkley.....	Greenwich.....	New York.
Drane, Robert.....	Edenton.....	North Carolina.
Drinker, Cecil Kent.....	South Bethlehem.....	Pennsylvania.
Dunn, William Thomas.....	State College.....	Pennsylvania.
Ewing, Harvey Milligan.....	New York.....	New York.
Fisher, Fred, Jr.....	Kane.....	Pennsylvania.
Gaughan, Robert Aloysius.....	Hazleton.....	Pennsylvania.
Halprin, Abram.....	Philadelphia.....	Pennsylvania.
Harrington, Stuart William.....	Du Bois.....	Pennsylvania.
Harrison, Francis Grillet.....	Philadelphia.....	Pennsylvania.

Name.	Post-Office.	State.
Heilman, Adam George.....	Lebanon.....	Pennsylvania.
Helm, John Daniel.....	New Providence.....	Pennsylvania.
Hewson, John Percival.....	Orange.....	Texas.
Hickman, Harry Chalmers.....	Wilmington.....	Delaware.
Jacobosky, Cyrus.....	Wilkes-Barre.....	Pennsylvania.
Jacobsen, Rafael.....	Havana.....	Cuba.
Johnson, Lloyd William.....	Augusta.....	Wisconsin.
Johnston, James Renfrew, Jr.....	Coshocton.....	Ohio.
Kilduffe, Robert Anthony, 3d.....	Philadelphia.....	Pennsylvania.
Lebkicher, Wellington Alfred.....	Reading.....	Pennsylvania.
Leiser, William, 3d.....	Lewisburg.....	Pennsylvania.
Lewis, Thomas Krapfel.....	Merchantville.....	New Jersey.
Long, William Samuel.....	Weatherly.....	Pennsylvania.
Longaker, Edwin Pancoast.....	Philadelphia.....	Pennsylvania.
Lynch, Frank Bruce, Jr.....	Philadelphia.....	Pennsylvania.
McCarthy, Cornelius Theodore.....	Philadelphia.....	Pennsylvania.
McEvoy, Frank Edward.....	Providence.....	Rhode Island.
McMahon, Francis Bartholomew.....	Milwaukee.....	Wisconsin.
McNamee, Edgar Paul.....	Butler.....	Pennsylvania.
McNeer, Thomas Theodore.....	Dante.....	Virginia.
Martin, Alexander Tertius.....	Germantown.....	Pennsylvania.
Mellon, George Walworth.....	Monaca.....	Pennsylvania.
Mercer, Eugene LeRoy.....	Mendenhall.....	Pennsylvania.
Moore, Lawrence Clayton.....	Ercildoun.....	Pennsylvania.
Mumma, Harry Getz.....	Brownstown.....	Pennsylvania.
Nedurian, Vramshabooch Sarkis.....	Norwich.....	New York.
Norris, Scott Allan.....	Homestead.....	Pennsylvania.
O'Brien, Lee Sullivan.....	Rochester.....	New York.
Parsons, Percy Paul.....	New Castle.....	Pennsylvania.
Prosser, William Oscar Hampton.....	Eugene.....	Oregon.
Ramsey, Frank McCracken.....	Sterling.....	Kansas.
Redmond, John Lawrence.....	Corpus Christi.....	Texas.
Reimann, Stanley Philip.....	Philadelphia.....	Pennsylvania.
Reiners, Charles Robert.....	Huntingdon.....	Pennsylvania.
Robertson, James Farish, Jr.....	Charlotte.....	North Carolina.
Rogers, Lewis Leonidas, Jr.....	Kingston.....	Pennsylvania.
Samuel, Edmund Roger.....	Mt. Carmel.....	Pennsylvania.
Sauer, Paul Kurt.....	El Paso.....	Texas.
Sawyer, William Alfred.....	Des Moines.....	Iowa.
Sheehan, William Coronado.....	Chestnut Hill.....	Pennsylvania.
Shivers, Charles Hendry de Turck.....	Atlantic City.....	New Jersey.
Silvester, Willis Wilson, Jr.....	Norfolk.....	Virginia.
Spahr, Richard Rockafellow.....	Mechanicsburg.....	Pennsylvania.
Sprowl, Raymond John.....	Warren.....	Indiana.
Steenburg, Donald Benjamin.....	Aurora.....	Nebraska.
Steinfield, Edward.....	Philadelphia.....	Pennsylvania.
Summa, Frank Paul.....	Kingston.....	Pennsylvania.
Sweet, Ralph Lincoln.....	Salina.....	Kansas.
Taylor, Frederick Raymond.....	Haverford.....	Pennsylvania.
Teufel, Walter Casper.....	Hazleton.....	Pennsylvania.
Villalobos, Nilo (y Quesada).....	Heredia.....	Costa Rica.

Name.	Post-Office.	State.
Vogt, David Mays.....	Prescott.....	Pennsylvania.
Weber, John Francis.....	Florence.....	New Jersey.
Wells, Frank Happersett.....	Chester Springs.....	Pennsylvania.
Wiant, Meade.....	Rimersburg.....	Pennsylvania.
Work, Philip.....	Pueblo.....	Colorado.
Wyatt, Worthem.....	Wadesboro.....	North Carolina.

Of the foregoing there were from:

California.....	I	Ohio.....	2
Colorado.....	I	Oregon.....	1
Connecticut.....	I	Pennsylvania.....	57
Delaware.....	3	Rhode Island.....	1
Indiana.....	I	Texas.....	3
Iowa.....	I	Virginia.....	2
Kansas.....	2	Washington.....	2
Mississippi.....	I	Wisconsin.....	3
Nebraska.....	I	Cuba.....	1
North Carolina.....	4	Costa Rica.....	1
New Jersey.....	5		—
New York.....	5	Total.....	99

The following received the Dr. P. H. Degree:

Edward Sinded-Tyau, M.D.
 C. Voonping Yui, M.D.
 Walter Herbert Blakeslee, A.M., M.D.
 Alonzo Hamilton Stewart, M.D.
 Charles Beaver Mack, M.D.

Certificates for Partial Course in Tropical Medicine:

Edward Sinded-Tyau, M.D.
 C. Voonping Yui, M.D.
 Walter Herbert Blakeslee, A.M., M.D.
 Alonzo Hamilton Stewart, M.D.
 Charles Beaver Mack, M.D.

PRIZES.

THE ALUMNI MEDAL awarded to the member of the Graduating Class who attains the highest general average in examination. To C. K. Drinker.

THE DR. SPENCER MORRIS PRIZE.—The annual income derived from the investment of Ten Thousand Dollars, awarded each year to that Medical Student of the Graduating Class who shall pass the best examination for the degree of Doctor of Medicine. To C. K. Drinker.

The Prize of an Obstetrical Forceps, offered by the Professor of Obstetrics, to the member of the Graduating Class who furnishes the best report of a case in Obstetrics occurring in the University Maternity Hospital. To C. K. Drinker, with honorable mention of J. W. Davis and R. A. Kilduffe.

THE FREDERICK A. PACKARD PRIZE of One Hundred Dollars, offered by a friend of the University to the member of the Graduating Class who has proven himself to be the most proficient in the course in Clinical Medicine. To C. K. Drinker.

A. O. J. KELLY PRIZE FUND.—Founded by contributions from friends of Dr. A. O. J. Kelly, deceased. Given to a member of the fourth year Medical Class who has made an especially meritorious report of some clinical observation in his regular University work. To R. A. Kilduffe, 3d.

SCHOOL OF MEDICINE.

POST-GRADUATE STUDENTS.

Name.	Residence.	City Address.
Bonner, William F., M.D. (Pennsylvania),	Philadelphia,	1234 S. 51st St.
Evans, W. B., M.D. (Pennsylvania),	Chester,	[8th and Madison Sts.]
Fretz, John Edgar, M.D. (Pennsylvania),	Easton.	
Helm, James H., M.D. (Washington University),	St. Louis, Mo.,	3615 Locust St.
Magee, David M. P., M.D. (Pennsylvania),	Williamstown, Mass.,	[Riverton, N. J.]

FOURTH YEAR CLASS.

Adson, Alfred Washington, B.Sc. (Nebraska),	Lincoln, Neb.,	3935 Pine St.
Allison, James Richard, A.B. (North Carolina),	Hendersonville, N. C.,	1737 N. 18th St.
Andreae, Paul Otto Mahr, Ashby, Edward Clayton, A.B. (Trinity College, N. C.),	Jersey City, N. J.,	3815 Spruce St.
Bancroft, John Walter, Ph.B. (Franklin & Marshall),	Mt. Airy, N. C.,	3609 Locust St.
Belk, William Parks, A.B. (North Carolina),	Altoona,	Dorm. 446 Lippincott.
Belfton, Joseph Franklin, B.S. (Wake Forest),	Charlotte, N. C.,	260 S. 38th St.
Bennett y Cordova, Raul, B.Ph. and L. (Univ. Bolivar),	Mt. Airy, N. C.,	3407 Walnut St.
Bolivar, Luis Napoleon, B.Ph. and L. (Univ. Bolivar),	Carthage, Colombia, S. A.,	3739 Locust St.
Broomall, Harold Shoemaker, Bump, Merton J.,	Monpox, Colombia, S. A.,	223 S. 37th St.
Buzzy, Benjamin Franklin, A.B. (Pennsylvania),	Chester,	3810 Chestnut St.
Campbell, Stephen, Chaney, Ralph Hill, A.M. (Oberlin),	Olean, N. Y.,	Dorm. 22 Rodney.
Cole, Charles James, Jr., A.B. (Pennsylvania),	Swedesboro, N. J.,	3743 Walnut St.
Conover, John Roy, Dennis, Edward Parker,	Philadelphia,	1541 S. Broad St.
Donnelly, John Devlin, Entwistle, Robert Morgan, B.S. (Princeton),	Northfield, Minn.,	2601 Lombard St.
Farley, David La Bauve, B.S. (Mississippi),	Elkins Park.	3537 Locust St.
Foerster, Harry Robert, B.S. (Wisconsin),	Atlantic City, N. J.,	3710 Spruce St.
Foncannon, Frank, A.B. (Kansas),	Erie,	Dorm. 27 Thomas Penn.
Frank, Louis Wallace, A.B. (Center College of Central Univ.),	Philadelphia,	3743 Walnut St.
Fussell, George Dock, A.B. (Swarthmore),	Johnstown,	3641 Locust St.
Green, Henry Larkin, B.S. (Louisiana),	University, Miss.,	3743 Walnut St.
	Milwaukee, Wis.,	Dorm. 313 Leidy.
	Emporia, Kan.,	Dorm. 20 Morgan.
	Louisville, Ky.,	Dorm. 316 Leidy.
	Roxborough,	421 Lyceum Ave.
	Oakland, La.,	3815 Spruce St.

Name.	Residence.	City Address.
Hanson, Otto Ludwig, B.S. (Wisconsin),	Chippewa Falls, Wis.,	3929 Pine St.
Hupp, John Cox,	Wheeling, W. Va.,	106 S. 33d St.
Immerman, Samuel Leon,	Philadelphia,	1111 N. 40th St.
Jalbuena (y Benedicto), Jose, A.B. (Ateneo de Manila),		
Keller, Joseph Charles,	Jaro, Iloilo, P. I.,	7104 Woodland Ave.
Kern, Richard Arminius, A.B. (Pennsylvania),	Philadelphia,	1352 Wagner Ave., Logan.
Kibler, William Herbert, A.B. (North Carolina),	Taborton, N. Y.,	3728 Walnut St.
Kleckner, Martin Seler, B.S. (Muhlenberg),	Morganton, N. C.,	3222 Chestnut St.
Kraemer, Harry Michael,	Allentown,	Dorm. 240 Hopkinson.
Krug, Bernard McDowell, A.B. (Washington & Lee),	Scranton,	3449 Woodland Ave.
Leopold, Simon Stein,	Sao Paulo, Brazil,	
Levering, James Walter,	Philadelphia,	3601 Locust St.
Logue, James Gibson,	do.	1428 N. Broad St.
Loughridge, Jonathan Edwards, A.B. (Williams),	Williamsport,	3745 Spruce St.
McCullough, Clarence Joseph,	Peoria, Ill.,	Dorm. 11 Rodney.
McNett, James Santee,	Pittsburgh,	Hamilton Court.
Masonheimer, Willard Charles, A.B. (Lafayette),	Hornell, N. Y.,	3720 Locust St.
Matsson, William W.,		3609 Walnut St.
Mermod, Roger Justin, B.Litt. and M.D. (Geneva, Switzerland),	Weatherly,	3703 Walnut St.
Millikin, Harry William, Milnor, Guy Champion, B.S. (Albright),	Seattle, Wash.,	3710 Spruce St.
Nafey, Herbert William, B.S. (Rutgers),	Ste. Croix, Vaud, Switzer- land,	2331 Madison Sq.
Pacheco (y Chaverri), Oscar, B.S. and A. (Liceo de Heredia),	Waynesburg,	Dorm. 435 Baird.
Peden, James Clark, B.S. (Davidson),	Warrensville,	Dorm. 240 Hopkinson.
Rubin, Robert William,	New Brunswick, N. J.,	3701 Locust St.
Rutherford, Frank Allen, A.B. (Lebanon Valley),	Heredia, Costa Rica,	3739 Locust St.
Schafer, Charles Solomon,	Fountain Inn, S. C.,	3703 Walnut St.
Schumm, Herman Charles, B.S. (Pennsylvania),	Philadelphia.	2243 S. 9th St.
Scruggs, William Marvin, B.S. (Wake Forest),	Royalton,	3815 Spruce St.
Shields, George Patrick,	Philadelphia,	2222 Ridge Ave.
Silman, Charles Norman, B.S. (Bucknell),	Fort Hamilton, N. Y.,	Dorm. 312 Leidy.
Simons, Isaac Shirk, A.B. (Franklin & Marshall),	Caroleen, N. C.,	3407 Walnut St.
Sloan, David Bryan, A.B. (North Carolina),	Oil City,	3703 Walnut St.
Smith, Gibson, A.B. (Pennsylvania),	St. Marys,	Dorm. 444 Lippincott.
South, John Joseph,	Marietta,	Dorm. 435 Baird.
Spangler, John Luther, B.S. (Pennsylvania),	Ingold, N. C.,	3601 Locust St.
Stewart, Joseph Edgar,	Philadelphia,	3641 Locust St.
Sturgis, Samuel Booth,	Bridgeport, Ohio,	3703 Walnut St.
Szlapka, Thaddeus Louis, B.S. (Pennsylvania),	York,	3728 Walnut St.
Taylor, James Swan, A.B. (Princeton),	Webb City, Mo.,	3618 Chestnut St.
Tebbetts, Herbert Edwin, B.S. (Earlham),	Roxborough,	3601 Locust St.
	Sheeder,	3728 Walnut St.
	Altoona,	3641 Locust St.
	Richmond, Indiana,	233 S. 40th St.

Name.	Residence.	City Address.
Thompson, Hugh Alexander, A.B. (North Carolina),	Raleigh, N. C.,	3601 Locust St.
Turlington, Lee Franklin, A.B. (North Carolina),	Mt. Airy, N. C.,	3609 Locust St.
Tyree, James I., A.B. (Missouri),	Webb City, Mo.,	3618 Chestnut St.
Underhill, Eugene, Jr., A.B. (Swarthmore),	Swarthmore.	
Walker, Robert Carroll, B.S. (Davidson),	Waycross, Ga.,	3803 Spruce St.
Wallace, Helen Ketcham, A.B. (Missouri),	St. Joseph, Mo.,	3618 Chestnut St.
Ward, Hugh David, B.S. (Wake Forest),	Southport, N. C.,	3407 Walnut St.
Wilkerson, Thaddeus Earl, B.S. (North Carolina),	Roxboro, N. C.,	3407 Walnut St.
Willson, Harry Leigh, B.S. (Whitman),	Idaho Falls, Idaho, Philadelphia,	3601 Locust St. Dorm. 13 Morgan.
Winkelman, Nathaniel,		

THIRD YEAR CLASS.

Alexander, Horace Edward,	Murfreesboro, Tenn.,	3729 Locust St.
Bates, William, B.S. (Pennsylvania),	Camden, N. J. Pottsville,	3601 Locust St. 27 S. 34th St.
Bergstein, Alfred Morton,		
Bodley, James Wiley, B.S. (Pennsylvania),	Staunton, Va., Strickersville, Stroudsburg, Pittsburgh,	3603 Locust St. Dorm. 315 Leidy. 3436 Walnut St. 2414 N. Broad St.
Buchanan, James Arthur,		
Buzzard, Josiah Floyd,	Caldwell, Idaho, Camden, N. J.,	4642 Hazel Ave. [559 Washington St.]
Callomon, Verner Bickart,	York, N. Y.,	3703 Walnut St.
Clemens, Edward Lamar, A.B. (Maryville),	Cheyenne, Wyoming, Salem, N. J.,	Dorm. 36 Thomas Penn. 23 N. 54th St.
Dibble, John,		
Dike, Benjamin Harrison,	Warrenton, N. C.,	3609 Locust St.
Ellis, James William,	Clarion,	4437 Chestnut St.
Ernest, Richard Bilderback, Jr.,	Scranton,	Dorm. 133 Baird.
Falkener, William White, A.B. (North Carolina),	Wheeling, W. Va.,	Dorm. 307 Brooks.
Fitzgerald, Charles Arnold,	Wilmington, N. C.,	3815 Spruce St.
Goldsmith, Nathan Ralph,	Salem, N. J.,	3703 Walnut St.
Goodwin, Andrew Jackson,		
Gore, Thomas Lee,		
Green, David Wright,		
Hale, Thomas Farris, A.B. (Georgetown); A.B. (Yale),	Louisville, Ky.,	3701 Walnut St.
Hamilton, Arthur Beck,	Bethlehem,	3703 Powelton Ave.
Higgs, Charles James,	Wilkes-Barre,	4 S. 43d St.
Hoge, Solomon F.,	Waynesburg,	3815 Spruce St.
Kelly, George Francis Joseph,	Philadelphia,	1234 Montrose St.
Kiang, Peter Ching, A.B. (St. John's Univ., Shanghai),	Shayang, Kingmen, China,	3609 Locust St.
Kistler, Robert Harrison, B.S. (Princeton),	Lansford,	3703 Walnut St.
Kuhlman, Ernest George, B.S. (Pittsburgh),	Mt. Lebanon,	3815 Spruce St.
Lane, Franklin Fayette, B.S. (Pennsylvania),	Philadelphia,	3610 Walnut St.
Little, Frederick Bryton, B.S. (Bucknell),	Uniontown,	4 S. 43d St.
Long, William Newton,	York,	Dorm. 322 Leidy.
Luikart, Ralph Herbert,	Omaha, Neb.,	3601 Locust St.
McCouch, Grayson Prevost, A.B. (Harvard),	Chestnut Hill,	St. Martin's Lane.
McKee, Clarence Stiles,	Aurora, Neb.,	3601 Locust St.
Marshall, John Edward, A.B. (Lebanon Valley),	Annville,	3815 Spruce St.

Name.	Residence.	City Address.
Miller, Richard Jonathan, B.S. (Gettysburg),		
Nichols, Eli, B.S. (Haverford),	Harrisburg.	3717 Locust St.
Packer, Jesse E.,	Wilmington, Del.,	[1607 Mt. Salem Lane.]
Passolano, Frank John,	Norwood,	[Norwood.]
Patrick, Jesse Kersey, A.B. (Haverford),	New Kensington,	3331 Chestnut St.
Paul, John Davis,		
Perrott, Edwin William, Jr., B.S. (Pennsylvania),	West Chester, Philadelphia,	3641 Locust St. 3112 N. Broad St.
Peters, Theodore, B.S. (Hamilton),	do.	3537 Locust St.
Plum, Frank Arents, A.B. (Washington),	Walden, N. Y.,	Dorm. 53 Thomas Penn.
Procter, Ivan Marriott, Jr.,	Seattle, Wash.,	3601 Locust St.
Rawlings, Fred Bangs, B.S. (Emory),	Raleigh, N. C.,	3609 Locust St.
Robbins, Elmer Ellsworth, Jr., A.B. (Harvard),	Sandersville, Ga.,	3703 Walnut St.
Sample, Robert Cannon, B.S. (Davidson),	New Bedford, Mass.,	3728 Walnut St.
Schlegel, Alvin Andrew, B.S. (Pennsylvania),	Hendersonville, N. C.,	3609 Locust St.
Short, John Theron, A.B. (Michigan),	Pittsburgh,	Dorm. 317 Leidy.
Simmons, James Stevens, B.S. (Davidson),	La Grange, Ind.,	Dorm. 36 Morris.
Sivyer, Allen Walters, B.S. (Wisconsin),	Graham, N. C.,	3609 Locust St.
Staub, Samuel John, B.S. (University of Pacific),	Milwaukee, Wis.,	Hamilton Court.
Wehman, Herbert John, A.B. (State Univ., Iowa),	Philadelphia,	1423 Walnut St.
West, Harmon, A.B. (State Univ., Iowa),	Burlington, Iowa,	3440 Walnut St.
Whelan, Paul, Wilson, Edwin Barrett, Woodard, George Sawyer. A.B. (Oberlin),	Missouri Valley, Iowa, Mondovi, Wis., Philadelphia,	3440 Walnut St. 3728 Walnut St. 3326 Walnut St.
Woodward, James Mac, B.S. (Nebraska),	Battle Creek, Mich.,	3815 Spruce St.
	Lincoln, Neb.,	3722 Locust St.

SECOND YEAR CLASS.

Alexander, John, B.S. (Pennsylvania),	Philadelphia,	Dorm. 420 McKean.
Allen, Kenneth Dayton Allison, A.B. (Denver),	University Park, Col., St. Paul, Neb.,	3743 Walnut St. 217 DeKalb Sq.
Andrews, Clayton Farrington, Archer, John George, Jr., B.S. (Vanderbilt),	Greenville, Miss.,	3708 Walnut St.
Arnett, John Hancock, A.B. (Princeton),	Philadelphia,	2116 Pine St.
Baird, Joseph Shannon, A.B. (Emporia),	Edgerton, Kan.,	Dorm. 14 Morgan.
Best, Paul Wesley, A.B. (Trinity College, N. C.),	Goldsboro, N. C.,	3611 Locust St.
Bloomhardt, Samuel Isett, A.B. (Gettysburg),	Altoona,	3717 Locust St.
Bucher, Carl Joseph, B.S. (Pennsylvania),	Logansport, Ind.,	3815 Spruce St.
Carpenter, Chapin, A.B. (Trinity College, Conn.),	Pottsville,	3601 Locust St.
Cook, Philip Lewis, A.B. (Lafayette),	Wyalusing, Scranton,	3260 Sansom St. 3728 Walnut St.
Donovan, William Murray,		

Name.	Residence.	City Address.
Dreifus, Percy,	Lititz,	208 S. 36th St.
Earhart, Samuel Darragh,	Medford, Ore.,	3743 Walnut St.
A.B. (Univ. of Washington),	Philadelphia,	2041 Green St.
Ely, William Cromwell,	Lima,	4007 Chestnut St.
B.S. (Pennsylvania),	Wayne,	Dorm. 314 Leidy.
Evans, Francis Edgerton,	West Brownsville,	3447 Walnut St.
Fallon, Louis Fleming,	Kasur, India,	Dorm. 44 Coxe.
Farquhar, Howard Lester,	Sunbury,	3743 Walnut St.
B.S. (Bucknell),	Philadelphia,	724 Salter St.
Forman, Douglas Newton,	Tioga,	3414 Ludlow St.
A.B. (Wooster),	Idaho Falls, Idaho,	3601 Locust St.
Francis, Raymond Toot,	Bentleyville	3703 Walnut St.
Giordano, Anthony Angelo	Philadelphia,	43d and Chester Ave.
Sebastian,	Guilford College, N. C.,	3708 Walnut St.
Greene, Cyrus Theodore,	Grand Rapids, Mich.,	3609 Locust St.
A.B. (Lincoln),	Reading,	307 S. 39th St.
Greenwell, Albert Wright,	Pittsburgh,	Dorm. 133 Baird.
B.S. (Whitman),	Wilmington, Del.,	3743 Walnut St.
Hetherington, Ray Russell,	Wilkes-Barre,	3950 Pine St.
Hinton, Drury,	Northampton,	3703 Walnut St.
Hobbs, Louis Lyndon, Jr.,	Germantown,	214 S. 37th St.
A.B. (Guilford); A.B. (North	Kreutzmann, Henry Adolph Robert,	Dorm. 41 Birthday.
Carolina),	San Francisco, Cal.,	
Hoebeke, William George,	Asheville, N. C.,	3601 Locust St.
A.B. (Hope),	Germantown,	Dorm. 353 Class of '87.
Huffman, Henry Kurtz Baum-	Columbus, Ga.,	3703 Walnut St.
gardner,	Seattle, Wash.,	3743 Walnut St.
B.S. (Gettysburg),	Newark, N. J.,	3714 Locust St.
Jena, Milton,	New York, N. Y.,	3743 Walnut St.
B.S. (Pittsburgh),	Mobile, Ala.,	3444 Chestnut St.
Jones, Lawrence Jesse,	Philadelphia,	4313 Sansom St.
A.B. (Syracuse),	Punxsutawney,	3743 Walnut St.
Kincius, Joseph J.,	Red Hook, N. Y.,	300 S. 36th St.
A.B. (Valparaiso),	Opelousas, La.,	3815 Spruce St.
Klotz, Jeremiah Alexander,	Coatesville,	Dorm. 406 Brooks.
A.B. (Lafayette),	do.	Dorm. 418 Franklin.
Kohlman, Samuel Hill,	Emlenton,	3405 Chestnut St.
Kreutzmann, Henry Adolph Robert,	Archibald,	3601 Locust St.
McBrayer, Reuben Adolphus,	Jersey City, N. J.,	300 S. 36th St.
A.B. (Wake Forest),	Kennett Square,	Dorm. 409 Leidy.
McCutcheon, Morton,	Easton,	3728 Walnut St.
A.B. (Pennsylvania),	Fairchance,	217 DeKalb Sq.
McDuffie, James Henry, Jr.,	Lebanon,	Dorm. 25 Coxe.
A.B. (Davidson),		
MacKinnon, Goff,		
B.S. (Univ. of Washington),		
Magoun, James Albert Hughes, Jr.,		
A.B. (Princeton),		
Mason, Frederick Raoul,		
Mastin, Edward Vernon Metcalfe,		
Murphy Douglas Power,		
North, Charles Quay,		
B.S. (Univ. of Washington),		
Patrie, Harry Hapeman,		
Pavy, Albert Berchmans,		
B.S. (Louisiana),		
Perkins, John Douglas, Jr.,		
Perkins, Joseph Ashbridge,		
Phillips, Arthur William,		
Propst, Walter William,		
Ph.B. (Lafayette),		
Pyle, Louis Apgar,		
Reynolds, David Duer,		
A.B. (Haverford),		
Rice, Walter Douglas,		
Scott, Roy Lorraine,		
Seabold, Paul Seibert,		

Name	Residence.	City Address.
Secord, Walter Newton, B.S. (Pennsylvania),	Newton, Mass.,	25 S. Van Pelt St.
Sharpe, Frank Alexander, B.S. (Davidson),	Greensboro, N. C.,	3703 Walnut St.
Shearer, Herbert Benjamin, B.S. (Pennsylvania),	Dublin,	[506 Hamilton St., Norristown.]
Shoemaker, Robert, 3d,	Ogontz.	
Spencer, Robert Douglas, B.S. (Penns. State),	Williamsport,	3728 Walnut St.
Stroud, William Daniel,	Philadelphia,	3637 Locust St.
Tweddel, George Kay, A.B. (Princeton),	do.	745 S. 60th St.
Vadala, Anthony Joseph,	do.	928 Christian St.
Vale, Claire Fremont, A.B. (Washington and Tusculum),	Somerville, N. J.	3601 Locust St.
Van Winkle, John Shaw,	Paterson, N. J.,	3614 Walnut St.
Waltz, Arthur David, Sc.B. (Bucknell),	Hepburnville,	3447 Walnut St.
Werner, Frank Pattison, Ph.B. (Franklin and Marshall),	Orwigsburg,	Dorm. 41 Coxe.
Yoho, Charles Elmer,	Elwood City,	3815 Spruce St.
Zacks, Myron Albert,	Erie,	Dorm. 20 Mask and Wig.

FIRST YEAR CLASS.

Adams, David Hayes Agnew,	Paoli,	1222 S. 45th St.
Alexander, Gail Hamilton,	Danville, Va.,	Dorm. 16 Thomas Penn.
Alston, Robert Swan,	Philadelphia,	1223 N. 58th St.
Bachman, Harry Wilson, A.B. (Davidson),	Bristol, Tenn.,	3708 Walnut St.
Balen, Morris Joseph,	Philadelphia,	514 W. Oxford St.
Behney, Charles Augustus, A.B. (Ursinus),	do.	5036 Irving St.
Biddle, Sidney Geoffrey, A.B. (Harvard),	do.	2017 Pine St.
Bowen, John Dennis,	Binghamton, N. Y.,	3721 Spruce St.
Bowing, Harry Herman, B.S. (Earlham),	Richmond, Ind.,	Dorm. 304 Brooks.
Burton, Aldrich Robert,	Philadelphia,	1834 Wharton St.
Bussinger, Marshall Robert,	do.	1623 N. 16th St.
Cancelmo, Jesse James,	do.	[Cardington.]
Chaney, William Calvert,	Chaney, Md.,	3455 Walnut St.
Cheyney, Ernest Waldron, B.S. (Pennsylvania),	Philadelphia,	259 S. 44th St.
Cochrane, Robert Miller,	Greensburg,	Dorm. 48 Thomas Penn.
Connolly, John Michael,	Philadelphia,	1935 N. 25th St.
Cook, Archibald Maclean, B.S. (Princeton),	Renovo,	[Haddon Heights, N. J.]
Coover, Donald Bruce, A.B. (Gettysburg),	Gettysburg,	3717 Locust St.
Croasmun, Max, B.S. (Allegheny),	Redclyffe,	214 S. 37th St.
DeCaria, Francis, R. Liceo Ginnasio Filangieri,	Monteleone, Italy,	3331 Walnut St.
Dixon, Fred Willis, B.S. (Geneva College, Pa.),	Enon Valley,	Dorm. 32 Edgar F. Smith.
Downs, Thomas McKean,	Three Tuns,	3637 Locust St.
Espy, Carl Wood,	Wilkes-Barre,	Dorm. 220 McKean.
Farrell, Martin Joseph,	Philadelphia,	918 Belmont Ave.
Finley, Edmund Leo, A.B. (Holy Cross),	Rome, N. Y.,	263 S. 38th St.
Foster, John Hess, B.S. (Colby),	Burton, Wash.,	3617 Locust St.
Frederick, LeRoy Walley,	Reading,	Dorm. 387 Lippincott.
Gilkey, Dean,	Berkeley, Cal.,	268 S. 38th St.

Name.	Residence.	City Address.
Gockley, Harry Frantz, B.S. (Albright),	Myerstown,	3234 Chestnut St.
Gonzalez, Edward, B.S. and A. (Liceo de Heredia),	Heredia, Costa Rica,	3608 Walnut St.
Hartman, John Calvin, B.S. (Gettysburg),	Gettysburg,	3717 Locust St.
Heacock, Charles Hunter, A.B. (Bucknell),	Turbotville,	Dorm. 362 John Baird.
Hill, Rolla Bennett, B.S. (Whitman),	Colfax, Wash.,	3617 Locust St.
Jepson, William Roscoe, B.S. (Dartmouth),	Sioux City, Iowa,	218 S. 44th St.
Keller, Samuel Harris,	Wilkinsburg,	Dorm. 319 Leidy.
King, Jonas Earl, A.B. (Grove City),	Grove City,	Dorm. 32 E. F. Smith.
Langdon, Roy Luther,	Scranton,	2909 Judson St.
Levy, Frank David,	Philadelphia,	230 Bainbridge St.
Logan, James Stewart, B.S. (Westminster, Pa.),	Pittsburgh,	Dorm. 41 Morris.
McMillan, Thomas Murphy, Jr., A.B. (Princeton),	Mobile, Ala.,	Dorm. 137 Hopkinson.
Marvel, Philip, Jr., A.B. (Yale),	Atlantic City, N. J.,	3337 Walnut St.
Mikelberg, Henry,	Philadelphia,	731 McClellan St.
Miller, George Henry, A.B. (Wooster),	Beallsville, Ohio,	3260 Sansom St.
Miller, James M., B.S. (Allegheny),	Pittsburgh,	214 S. 37th St.
Milligan, Alexander McLeod, A.B. (Westminster, Pa.),	do.	Dorm. 48 Coxe.
Moffitt, Harold Fred,	Altoona,	217 DeKalb Square.
Moffises, Phillip, A.B. (Euphrates),	Harpoot, Armenia,	3359 Woodland Ave.
Montenegro, João Baptista de Freitas,	São João da Bocaina (São Paulo), Brazil,	Dorm. 51 Rodney.
B.Litt. (McKenzie College),	Vancouver, Wash.,	Dorm. 34 Rodney.
Neill, William Alfred, Puente, de la, Carlos Alcibiades, B.S. (San Marcos),	Lima, Peru,	3331 Walnut St.
Raker, Conrad Joseph M., B.S. (Muhlenberg),	Shamokin,	3717 Locust St.
Reinke, Charles Knauss, Ph.B. (Lafayette),	Philadelphia, Chestnut Hill,	2327 S. 13th St.
Richards, Joseph Francis, Rogers, Harry Lincoln,	Burlington, N. J.,	59 Bethlehem Pike.
Russell, James Andrew Merle, Shelly, James Acuff,	Erie,	3604 Walnut St.
Shipley, Vincent Talbot, A.B. (Maryville),	Ambler,	Dorm. 49 Thomas Penn.
Sifre, Ramon Julian,	Baltimore, Md.,	3604 Walnut St.
Stepp, Lawrence Lorraine, A.B. (Grove City); A.B. (Pitts- burgh),	Corozal, P. R.,	3234 Chestnut St.
Stuart, William Baird, B.S. (Penna. State),	Valencia,	3331 Walnut St.
Stuempfle, Henry David,	Carlisle, Williamsport,	3405 Chestnut St.
Truschel, Eugene John, B.S. (Pittsburgh),	Pittsburgh, Newton, N. J.,	3617 Locust St.
Voorhees, Lamar Shepard, Yusif, Shakir, A.B. (Assiut),	Sanabu via Dyrout, Egypt,	Dorm. 41 Bishop White.
Ziskind, Frank Solomon,	Syracuse, N. Y.,	3405 Chestnut St.
		225 S. 33d St.
		638 N. Franklin St.

SPECIAL STUDENTS.

Name.	Residence.	City Address.
Poon, Chi Um,	Canton, China,	3608 Locust St.
Sangree, Henry K.,	Wilmington, Del.,	[1329 Dupont St.]
Tyau, Edward Sinded,		
Dr. P.H. (Pennsylvania),	Shanghai, China,	3611 Locust St.
Yu, Sai Mo,	Canton, China,	3608 Locust St.
Yui, C Voonping,		
Dr. P.H. (Pennsylvania),	Shanghai, China,	3611 Locust St.

COURSES IN PUBLIC HEALTH.

Asuis, Eugene J., M.D. (Medico-Chirurgical),	Philadelphia,	628 N. 18th St.
Casselman, Arthur Jay, M.D. (Pennsylvania),	Camden, N. J.,	1213 Locust St.
Davidson, Douglas Treat, A.B. (Yale); M.D. (Pennsylvania),	Warren,	2325 Thompson St.
Gasslein, Richard Joseph, M.D. (Jefferson),	Philadelphia,	3314 N. 15th St.
Kolmer, John Albert, M.D. (Pennsylvania),	do.	927 S. St. Bernard St.
McSherry, Emory Ford, M.D. (Pennsylvania),	Brookville, Ohio,	210 S. 36th St.
Rapoport, David Nisan, M.D. (Medico-Chirurgical),	Philadelphia,	1512 S. 6th St.

SPECIAL COURSE IN BACTERIOLOGY.

Huber, Dawson H., D.D.S., (Pennsylvania).	Philadelphia,	5117 Spruce St.
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SUMMARY

Post-Graduate Students.....	5
Students of the Fourth-year Class	76
Students of the Third-year Class	57
Students of the Second-year Class	68
Students of the First-year Class	65
Special Students	6
Course in Public Health	7
 Total.....	 284

MEDICAL CALENDAR FOR 1914-1915.

1914.

June 18, Thursday.....*Registration of Candidates for Admission: 9 A. M.

June 18, Thursday.....Entrance Examinations: 9 A. M.

Sept. 17, Thursday.....*Registration of Candidates for Admission: 9 A. M. to 11 A. M.

Sept. 17, Thursday.....Entrance Examinations begin: 9. A. M.

Sept. 21, Monday.....Competitive Examinations for Medical Scholarships begin: 10 A. M.

Sept. 21, Monday.....Examination for Admission to Advanced Standing begins: 2 P. M.

Sept. 21, Monday.....Re-Examinations begin: 2 P. M.

Sept. 25, Friday.....Session begins.

Nov. 25, Wednesday.....Thanksgiving Recess begins: 6 P. M.

Nov. 27, Friday.....Thanksgiving Recess ends: 9 A. M.

Dec. 23, Wednesday.....Christmas Recess begins: 6 P. M.

1915.

Jan. 4, Monday.....Christmas Recess ends: 9 A. M.

Jan. 25, Monday.....Mid-Year Examinations begin: 9 A. M.

Feb. 22, Monday.....University Day: Recess.

April 1, Thursday.....Easter Recess begins: 6 P. M.

April 6, Tuesday.....Easter Recess ends: 9 A. M.

May 3, Monday.....Last day for receipt of Prize Essays and Reports.

May 24, Monday.....Final Examinations, Fourth-Year Class, begin.

May 29, Saturday.....Final Examinations, other Classes, begin.

June 16, Wednesday.....Commencement: 11 A. M.

*Registration of candidates for admission by *examination* only. Registration and Examination conducted in College Hall.

UNIVERSITY OF ILLINOIS-URBANA



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